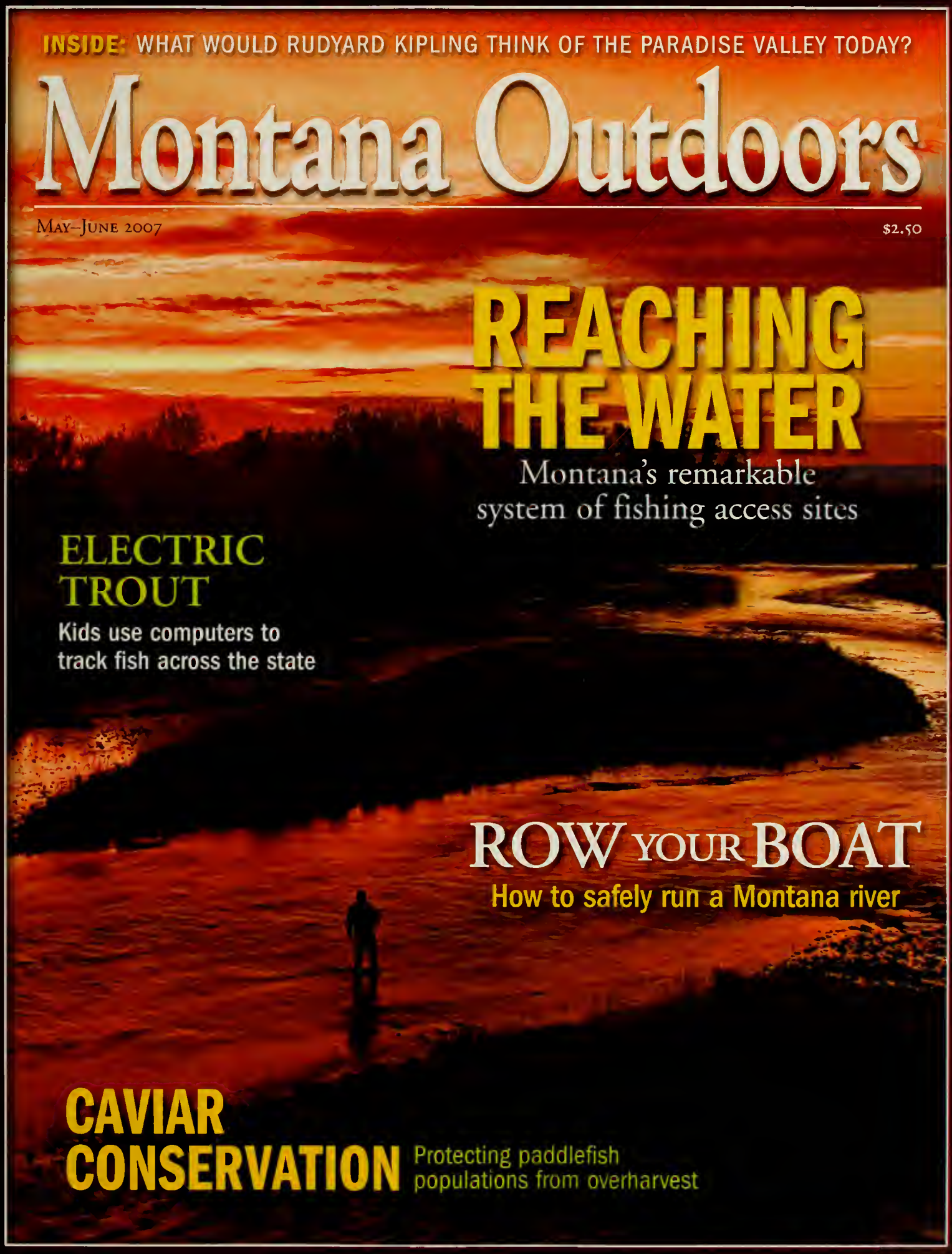
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Montana's remarkable system of fishing access sites
ELECTRIC TROUT
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Montana Outdoors (ISSN 0027-0016) is published bimonthly by Montana Fish, Wildlife & Parks. Subscription rates are $9 for one year, $16 for two years, and $22 for three years. (Please add $3 per year for Canadian subscriptions. All other foreign subscriptions, airmail only, are $35 for one year.) Individual copies and back issues cost $3.50 each (includes postage). Although ***Montana Outdoors*** is copyrighted, permission to reprint articles is available by writing our office or phoning us at (406) 495-3257. All correspondence should be addressed: ***Montana Outdoors***, Montana Fish, Wildlife & Parks, 930 West Custer Avenue, P.O. Box 200701, Helena, MT 59620-0701, or e-mail us at montanaoutdoors@mt.gov. Our website address is fwp.mt.gov/mtoutdoors. ©2007, Montana Fish, Wildlife & Parks. All rights reserved.

Montana Outdoors

MAY–JUNE 2007

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NOT AWAKE ZONE Busy during daytime, the fishing access site at Black Sandy State Park on Hauser Reservoir quiets down once the sun sets. Learn more about Montana's access sites on page 10. Photo by Craig & Liz Larcom.

COVER An angler searches for trout at twilight on the Bighorn River. Our article on fishing access sites, page 10, explains how waders and boaters benefit from these streamside public lands. Photo by Cabel Noteboom.

Montana Outdoors
VOLUME 38, NUMBER 3
For address changes or other subscription information call:
800-678-6668

Postmaster: Send address changes to ***Montana Outdoors***, Montana Fish, Wildlife & Parks, 930 West Custer Avenue, P.O. Box 200701, Helena, MT 59620-0701. Preferred periodicals postage paid at Helena, MT 59620, and additional mailing offices.

Boondoggle or moral obligation?

I was reading your March–April issue and was really enjoying it until I came to the piece on black-footed ferrets ("Ferrets in the Spotlight"). This is a classic example of the fleecing of America. Twenty-eight years of research and Montana taxpayers' money and all they have to show for it are 15 or 16 ferrets in the wild? I always felt the wolf programs were a boondoggle, but this ferret program tops them.

Craig Marshall
Prescott Valley, Arizona

Regarding the article "Ferrets in the Spotlight": Almost losing black-footed ferrets to extinction is one of the great near-tragedies of American conservation. How is it that we could restore the pronghorn antelope, wild turkey, peregrine falcon, and bald eagle yet let this small predator of the Great Plains nearly disappear off the face of the earth? As the article states, bringing endangered species back from the brink is expensive. It's far more cost-effective in the long run to keep them away from the brink in the first place—not to mention that it's our moral obligation.

Robert T. Nelson
Spokane, Washington

Even more safety, please

FWP director Jeff Hagener's "No Child Left Inside" in the March–April issue is a fine article promoting the importance of introducing kids to the wonders of the outdoors. Most of us acquired our passion for the outdoors as kids from adults. What and how we learn can set the stage for our teaching the next generation. One quibble, however: The

accompanying photo shows an adult and a child both in float tubes. It is great that the boy is wearing a life jacket as required. But it's too bad the adult is not wearing one. Though life jackets aren't required for adults in float tubes, FWP recommends wearing one. *Montana Outdoors* could enhance water safety by only running photos that show practices recommended by your department. Many times kids learn by what we adults do. Thanks for promoting the passion of the outdoors with your fine magazine.

Vick Applegate
Missoula

Tracking down classes

I enjoyed the article by Ben Long on tracking wild animals ("On the Right Track," November–December 2006). Do you know of any organizations that offer classes in tracking?

Evan McMillon
Kalispell

A winter course called Trailcraft, Tracking, and Sign Interpretation is offered by Brian Baxter, a tracking instructor in Libby. You can reach him at b_baxter53@yahoo.com. Northwest Connections offers a two-day tracking clinic each February. Reach the Swan Valley–based conservation organization at northwestconnections.org.

I lived for over 50 years right on the banks of Cherry Creek, south of Culbertson. We had deer, wild turkeys, rabbits, skunks, porcupines, and other animals come right into the yard of our house. One year after a big rain I was out for a walk and saw some tracks in the mud. I went back to the house and melted some canning wax and made molds of the prints. They were raccoon tracks that looked just like the ones on page 16 of your article on tracking ("On the Right Track"). I have enjoyed looking at animal tracks over the years. I only wish I had thought of preserving them with wax sooner.

Betty Zoanni
Sidney

Learning about birds in Montana

Regarding the identification of the bird on page 11 of the January–February 2007 photo issue: Soon after moving to Montana from Colorado in 1956 to work as a fisheries biologist in Kalispell, I pointed out a similar bird to my co-worker and said, "There's a yellow-headed blackbird." "No," my co-worker said, "in Montana they're called a black-bottomed yellowbird." Looks like the name has been changed back.

C. E. Cushing
Estes Park, Colorado

Correction

In the March–April issue we reported that previous to the 2006 survey by the Montana Natural Heritage Program (MNHP) and University of Montana, Idaho giant salamanders had never before been documented in Montana. In fact, they were first reported by Brian Riggers and Jennifer Mickelson, fisheries biologists with Lolo National Forest, in fall 2005 while working on a habitat enhancement project on Big Creek, a tributary of the St. Regis River. The biologists reported the discovery to the MNHP, which then conducted the 2006 amphibian survey in the St. Regis drainage to determine the species' abundance and range.

■ We welcome your comments, questions, and letters to the editor. We'll edit letters as needed for accuracy, style, and length. Mail your letter to: Montana Outdoors, P.O. Box 200701, Helena, MT 59620-0701. Or e-mail us at: tdickson@mt.gov.

TOM DICKSON

"A fish? More likely it's the flat-screen TV he almost bought last weekend."

The pumpkinseed sunfish is just one of many interesting (and tasty) fish species found in eastern Montana.

MONTANA FWP

Fish the Prairie

I like fishing for trout as much as anyone, but having grown up in Havre I also enjoy angling for warmwater fish. My dad used to take me and my brothers fishing on Beaver Creek and the Milk River, and later in life I caught big paddlefish on the Missouri River and many nice walleyes on Fort Peck Lake, Fresno Reservoir, and Lake Elwell.

The excellent fishing in the state's eastern half may be one of Montana's greatest outdoors recreation secrets. Because the scenery there is less dramatic (and Robert Redford didn't make a movie about catfishing), Montana's warmwater fishing doesn't get the national attention that trout fishing does.

One of the great things about warmwater fish is their eating quality. Walleyes, sauger, panfish, bass, catfish, and other species taste great when filleted, breaded, and fried in oil. Another feature is their willingness to bite. Trout can be finicky, but warmwater species are often eager to consume your night crawler, spinner, or crankbait. What's more, warmwater species are often big. Paddlefish can top 100 pounds, some bigmouth buffalo weigh over 55 pounds, and the channel catfish state record is nearly 30 pounds.

Maybe what's most appealing about warmwater fishing is the diversity of species you can hook. Coldwater streams have trout and mountain whitefish. On a warmwater reservoir like Nelson, near Malta, you can hook bigmouth buffalo, burbot, goldeye, lake whitefish, northern pike, shorthead redhorse, walleyes, and a half-dozen other species. It's like an angling smorgasbord.

Some other top eastern Montana warmwater fisheries to take your family to this summer:

• *Mouth of the Milk River:* Just east of Glasgow, the Milk River runs into the Missouri River. There you can catch shovelnose sturgeon, sauger, walleyes, northern pike, and up to a dozen other overlooked species, including blue suckers.

• *Fort Peck Reservoir:* Fort Peck is nationally known for its walleyes, but the massive impoundment of the Missouri is also one of the few places in Montana to catch hard-fighting smallmouth bass. The best spots are between Rock Creek and McGuire Creek in the upper Big Dry Arm, along the face of the dam, and farther west along rocky points from Hell Creek to Devils Creek.

• *Lower Yellowstone River:* In addition to paddlefish, the lower Yellowstone is an excellent spot for channel catfish and sauger, both delicious species. The sauger fishing is good from Billings downstream to the North Dakota border, and the best channel cat fishing is downstream from Glendive.

• *Tongue River Reservoir:* This impoundment of the Tongue River gets packed with crappie anglers on Mother's Day and Memorial Day weekends, but it's usually uncrowded the rest of the year. By midsummer, the crappies go deep and are harder to find, but that's still a good time to fish for smallmouth bass, walleyes, catfish, and carp.

There are dozens of other warmwater lakes, ponds, and rivers in eastern Montana that have excellent fishing. Some even have trout, if that's your preference. This summer, consider taking your family on an angling adventure to the great fishing waters of the state's eastern half. Find them all on-line in the Montana Fishing Guide at fwp.mt.gov.

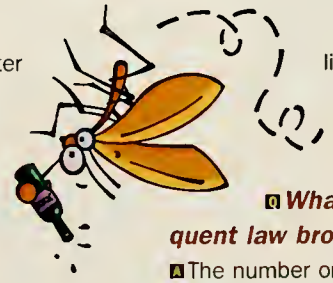
—M. Jeff Hagener, *Director, Montana Fish, Wildlife & Parks*

NATURAL WONDERS

Illustration by Peter Grosshauser

Q *Is it true you can fish for federally threatened bull trout in some Montana waters?*

A Yes. Anglers can fish for bull trout on Hungry Horse Reservoir, Lake Koocanusa, Swan Lake, and part of the South Fork Flathead River (each water has its own limit and season). By allowing some limited fishing opportunities for this largest of Montana's native trout, FWP hopes to increase public support for bull trout management and habitat protection. Anglers fishing for bull trout must have in possession a valid bull trout catch card for the water they are fishing. To get the free card, fill out an application from the regional FWP office in Kalispell or go on-line to fwp.mt.gov.



Q *I'm not a fly angler, but I'd like to learn to tell a caddis fly from a mayfly. Any advice?*

A When sitting on vegetation or the water, caddis flies have downturned wings, while mayflies have upturned wings. When flying, caddis flies flutter erratically, like drunken moths; mayflies fly gracefully, like tiny fairies.

Q *What's the most frequent law broken by boaters?*

A The number one infraction is failure to have a "personal flotation device" (Coast Guard–approved life jacket) in the boat for each person in the boat. Adults aren't legally required to wear life jackets at all times (though kids under age 12 are), but the devices must be readily accessible.

Don't let garbage kill grizzlies

Some of the biggest threats to grizzly bears in Montana are garbage, dog chow, and birdseed. The edibles attract bears to rural homes and cabins, where the animals can endanger human life. Bears addicted to garbage end up being killed—by wildlife authorities, vehicle collisions, or people defending their lives or property. A fed bear is a dead bear even if you don't feed it intentionally.

"More people are choosing to live where bears have lived for centuries," says Jamie Jonkel, Montana Fish, Wildlife & Parks bear management specialist in Missoula. "The bears aren't coming in from somewhere to trouble us—this is their traditional habitat; they have nowhere else to go."

To provide property owners with the best information on how not to inadvertently feed grizzly and black bears, FWP has created a new "Bear Aware" webpage on its website. The page contains information on how to live in bear country, be aware of bears in the outdoors, and reach FWP's bear experts for additional information.

The site includes an interactive photograph of a rural Montana residence showing various items that could be bear attractants. Property owners can also fill out a residential assessment scorecard to learn if their home or cabin is attractive to bears. In addition, the website contains information on camping and hiking in bear country, and how to use bear pepper spray.

To reach the site, go to fwp.mt.gov and enter "bear aware" in the search box.

Quaggas muscle into the West

A biological invader recently discovered in Nevada's Lake Mead has prompted state and federal agencies throughout the West to urge anglers and boaters to increase their vigilance to prevent the further spread of aquatic invasive species.

In early January, employees at the Lake Mead National Recreation Area discovered an established population of quagga mussels in the reservoir. The fingernail-sized mussels, native to eastern Europe's Black Sea region, first entered the United States in the late 1980s in the ballast of a ship that entered the Great Lakes through the St. Lawrence Seaway. Like its cousin the zebra mussel, the quagga rapidly reproduces and clogs municipal and industrial water systems, covers the hulls of recreational boats, and disrupts the ecology of lakes and rivers.

The mussels have been plaguing eastern and midwestern waters for years. Industries, municipalities, and state agencies throughout the Great Lakes have spent more than $3 billion over the past decade trying to control quagga and zebra mussels, particularly to keep them from clogging water intake pipes.

"Before this we were mainly concerned about boats coming into Montana from east of here, but now that quagga mussels are in Lake Mead and threatening to enter Lake Powell and other western waters, we have to consider a boat coming into the state from anywhere a threat," says Eileen Ryce, coordinator of the Aquatic Nuisance Species Program for Montana Fish, Wildlife & Parks.

Both mussel species produce microscopic larvae (called veligers) that float freely in water. Veligers, which grow to look and feel like pepper grains, can be transferred from one water to another in a boat's livewell or transom or on aquatic vegetation stuck to the craft or trailer.

Zebra and quagga mussels blanket lake bottoms in dense colonies, often killing native mussels. They also consume vast amounts of zooplankton, removing it from the ecological chain that supplies food to minnows, aquatic insects, and game

DAVID BRITTON/U.S. FISH & WILDLIFE SERVICE

Adult zebra and quagga mussels have D-shaped shells the size of a fingernail, usually with alternating light and dark stripes—from which come the names zebra and quagga (an extinct zebra species).

How much food to pack?

The only thing worse than bringing too much food on a backpacking trip is not bringing enough. Excess granola bars, cocoa, cheese, and other items end up being weight you didn't need to hump up and down the mountain. On the other hand, no one wants to go hungry, especially in the backcountry.

So how much is the right amount? According to Glenn Randall, author of *The Outward Bound Backpacker's Handbook*, most backpackers need roughly 2 pounds of dry food per day. Here's his prototype menu for each person for a four-day trip:

If you have more than 6 pounds of food in your backpack for a three-day trip, you're carrying too much.

	FOOD ITEMS	OUNCES
BREAKFAST	Cold cereal	5
	Powdered milk	1
	Instant coffee	0.25
	Nondairy creamer	0.5
LUNCH	Bagel or crackers	3
	Peanut butter or cream cheese	3
	Cookies or energy bars	3
	Powdered sports drink	3
DINNER	Rice or noodle dish	3
	Cheese or canned meat	3
	Bagel or crackers	3
	Cocoa	2
	Bar chocolate	2
	TOTAL	31.75 *(roughly 2 lbs.)*

CLEAN BOATS = CLEAN WATERS

Boaters and anglers who recreate on rivers and lakes are the first line of defense in protecting Montana waters. To keep from transporting quagga mussels and other unwanted biological hitchhikers:

ESSENTIAL TO DO:

- **CLEAN** Drain all water and remove all vegetation and mud from your boat, trailer, or other recreational craft before leaving the lake, reservoir, or river.
- **WASH** Wash the exterior of your boat and trailer with hot water under high pressure. Rinse and clean livewells using hot soapy water or a weak bleach solution.
- **DRY** Allow your boat to dry between trips to different water bodies, ideally for five days.

DAVID BRITTON/U.S. FISH & WILDLIFE SERVICE

A boat hull encrusted with the razor-sharp shells of zebra mussels.

Other guidelines for preventing the spread of aquatic nuisance species:

- Dispose of unwanted bait in the trash, never in a lake or river.
- Never move live fish, aquatic invertebrates, or plants from one body of water to another or bring bait into Montana from another state. (It is unlawful to release aquarium or bait fish into Montana waters.)
- Report any potential sightings of zebra or quagga mussels immediately to FWP by calling (406) 444-2449. If possible, collect a sample, place it in a jar or plastic bag, and note the specific location and date.
- Tell neighbors and friends about preventing the spread of aquatic nuisance species.

For a list of known invasive aquatic species and their locations, visit the FWP website at fwp.mt.gov and search for "aquatic nuisance species."

fish and waterfowl. When the mussels die, their sharp shells wash up by the ton on beaches, fouling the shoreline with a rotting smell and making it dangerous to walk barefoot.

Quaggas on Lake Mead already number in the millions, and all of those mussels are producing larvae that can make their way into the transoms and livewells of boats destined for other states. On a single summer weekend, up to 5,000 boats launch on Lake Mead and nearby Lake Mohave.

"This discovery is a red alert for Montana to step up our vigilance," Ryce says. Early detection and isolation is essential to controlling and possibly eradicating aquatic invaders. "The quagga mussel is very worrisome because it can spread more broadly than the zebra mussel. It can attach to hard and soft surfaces, while the zebra mussel only attaches to hard surfaces," Ryce says.

Is that a dee—*crash*!

In addition to mating sharp-tailed grouse and budding aspen leaves, a sure sign of spring is the increase in dead deer and other large wildlife along roadsides. The Montana Department of Transportation estimates roughly 7,500 wildlife collisions each year occur in the state, resulting in more than 100 human injuries and two to three fatalities. Annual vehicle damage is estimated at several million dollars.

Most wildlife collisions occur at dawn and dusk when deer are near roads moving to and from feeding areas and are not easily visible to drivers. Vehicles also collide with moose, elk, bighorn sheep, bears, and wolves.

Some tips to help you avoid having a deer or other big critter end up on your bumper:

1. Be especially alert at dawn and dusk when animals are most active.
2. Keep a close watch for wildlife on and near the road. A flicker in the headlights of oncoming cars may indicate that an animal is crossing or near the road ahead of you.
3. Slow down on roads notorious for wildlife collisions, such as Montana Highway 83 between Seeley Lake and Bigfork and U.S. Highway 12 between Townsend and Roundup.
4. Use extra caution near posted deer crossings, where deer and other wildlife traditionally cross the road to reach food, water, or shelter.
5. Be aware that deer and elk rarely travel alone. When one crosses the road, prepare to avoid those that follow. In spring and summer, watch for trailing fawns and calves.
6. Be especially watchful along rural roads where roadside brush may obstruct your view of roadside wildlife.
7. Don't rely on front-bumper-mounted "deer whistles," which claim that the ultrasonic sound they emit alerts deer of oncoming traffic. Several studies have shown they don't work.

If you hit a deer or other big game animal, remember it is illegal to possess or transport that animal, or any portion of it, including the antlers.

To report the collision, call the city police, county sheriff, or the Montana Highway Patrol.

If the animal is seriously injured but still alive, ask that an FWP game warden or other law enforcement officer be sent to dispatch the animal and safely remove it from the road. It's illegal to dispatch it yourself. And you should not try to help or move injured wild animals yourself, because they can be dangerous and unpredictable.

Wildlife collisions in Montana kill thousands of big game animals each year and injure dozens of drivers and passengers.

Texans convicted of poaching in Montana

Montana wardens confiscated dozens of elk and deer racks and other wildlife trophies from the Texas couple.

MONTANA FWP

Just how far will Montana game wardens go to investigate suspected poachers? In this case, all the way to Texas.

Two FWP game wardens from southwestern Montana pursued a Texas couple who were suspected of hunting elk and deer without valid licenses on a private ranch near Twin Bridges over a six-year period.

Based on a call to Montana's Turn In Poachers hotline (TIP-MONT), Game Warden Shane Brozovich found that William Hudson of Early, Texas had been hunting in Montana since 1982 but had not purchased any licenses since 2000. His wife, Faye Hudson, had hunted with him during two seasons, also without licenses.

"The call to TIP-MONT was essential, because without it we would have never been able to get this investigation started," says Brozovich. "We know this type of illegal activity is taking place in Montana, and we're working to put an end to it, but unless we get leads from the public, it's hard to investigate and prosecute."

As the investigation unfolded, Brozovich learned that the couple was illegally using the resident hunting licenses of the former ranch owner, Sylvester Seidensticker, who still lived on the ranch. Seidensticker was charged with transferring his hunting licenses to the Hudsons.

Brozovich and FWP Regional Investigator Chad Murphy traveled to Texas in January and assisted a Texas Parks & Wildlife warden in executing a search warrant at the Hudson residence. Among the confiscated items: a trophy 6 X 6 bull elk rack, 11 nontrophy bull elk racks, and 13 mule deer and white-tailed buck racks.

While in Texas, the Montana game wardens issued citations and collected $22,530 in fines and restitution. William Hudson was later convicted of hunting big game without valid licenses, illegally transferring hunting licenses, taking an over-limit of elk, and unlawfully possessing and transporting big game animals. Faye Hudson was convicted of hunting deer without valid licenses and wasting game.

In addition to the fines and restitution, the Hudsons also lost hunting privileges (William: ten years; Faye: four years) in Montana and 23 other states that are members of the Interstate Wildlife Violator Compact.

Murphy recommends that Montanans and visitors to the state keep the TIP-MONT hotline number (800-847-6668) handy in a glove compartment or with their cell phone. TIP-MONT rewards callers who report natural resources crimes, hunting and fishing violations, or vandalism in a Montana state park or on U.S. Forest Service lands. Callers may be eligible for a cash reward of up to $1,000 if the informarion leads to an arrest.

White House says proposed Canada mine is the pits

The Bush administration is joining Montana officials in opposing a coal mine proposed in British Columbia that could harm some of the state's premier fishing and recreation waters.

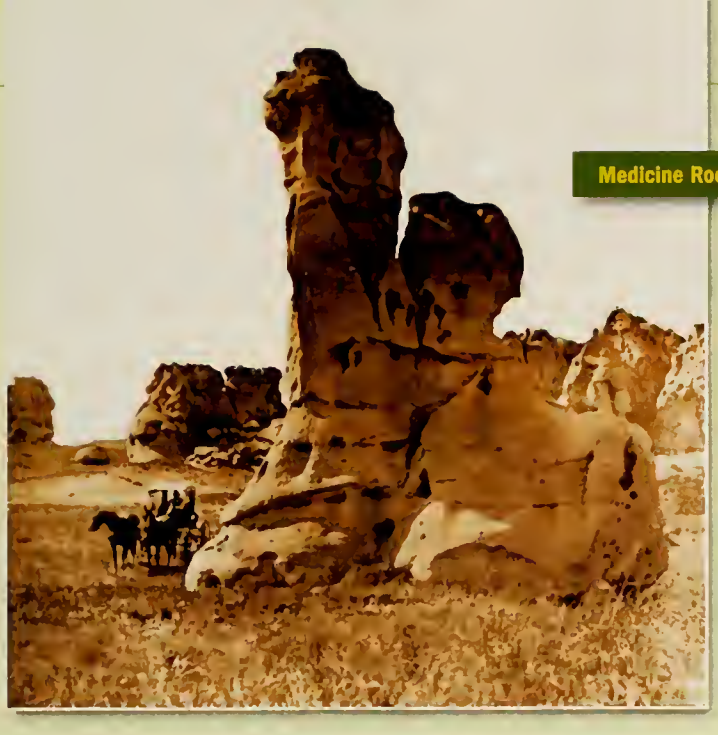
The Associated Press reports that in a recent letter to the British Columbia government, the U.S. State Department warned that an open-pit mine that Cline Mining Company wants to develop just north of Glacier National Park could lead to environmental harm in the United States.

Montana Governor Brian Schweitzer and Senator Max Baucus have previously denounced the proposal, saying it jeopardizes water quality in Glacier National Park, Flathead Lake, and other popular fishing and boating waters.

Environmental groups have said the mine, if built, could pollute the North Fork of the Flathead River, which begins in British Columbia and flows across the U.S.–Canada border along the west boundary of Glacier National Park. Then it joins the Middle and South forks of the Flathead River to form the Flathead River, which flows south into Flathead Lake.

Edward Alex Lee, Canadian affairs director in the State Department, wrote in the letter that the Flathead basin is "an area of unique and internationally recognized environmental importance," and that the mine could cause "significant adverse environmental effects" in the United States.

Proposed for just north of Glacier National Park, the Canada coal mine could threaten Montana trout waters.



Medicine Rocks State Park: 50 years old in 2007.

It's Travel Time

From prehistoric mysteries to satellite-based adventure, Montana's state parks offer a whole summer of fun and discovery. A sample of what's in store is listed below. For a complete list of events statewide, visit the state parks events calendar at fwp.mt.gov.

CARDBOARD CUP REGATTA

Spring Meadow Lake State Park, Saturday, July 14. Boxes ahoy! After a short hiatus, this popular boat race is back. Boats must be made of corrugated cardboard and can be propelled in any manner except with motorized power. Awards will be given in seven different categories. Proceeds go to benefit environmental improvements at Spring Meadow Resources, a nonprofit that helps adults with disabilities. Registration is from 8:30 to 10:30 a.m. and the race begins at 11 a.m.

For race rules, visit the FWP website or call Spring Meadow Resources at (406) 443-2376.

Cardboard Cup Regatta

PERSONALITIES IN THE PARK SPEAKER SERIES

Giant Springs and Ulm Pishkun state parks, Thursdays, June 14–August 16, 7 p.m. The history of these two Great Falls–area parks is filled with fascinating characters. In this speaker series, alternating between the two parks, visitors will learn about Great Falls founder Paris Gibson, pioneer and landowner William Ulm, Lewis and Clark Expedition members York and Sacajawea, the great Apsáalooke Chief Plenty Coups, humorist Mark Twain, and others.

Visit the FWP website or call (406) 454-5870.

MEDICINE ROCKS 50TH ANNIVERSARY

Medicine Rocks State Park, June 2, noon. Long before it became a state park, this serene area with its unique rock formations was a popular gathering place for American Indians, travelers, and local residents. Celebrate this rich heritage at the park's 50th anniversary. This family-oriented day will feature speakers, including a presentation on President Teddy Roosevelt, a barbecue lunch, and birthday cake.

Visit the FWP website or call (406) 234-0926.

THE CHARACTER OF MONTANA TALKS

Beavertail Hill State Park, Fridays, June 8–August 17. 8 p.m. End your workweek by relaxing along the scenic Clark Fork River while listening to tales told by Montana storytellers of the region's colorful historic characters.

Visit the FWP website or call (406) 542-5533.

HEADWATERS SPEAKER SERIES

Missouri Headwaters State Park. Saturdays, June 2–August 25, 7 p.m. Popular speakers from around Montana talk about the culture, history, and geology of this important site, which Lewis and Clark believed was the Missouri River's origin and which for centuries beforehand was a meeting place and crossroads for American Indian tribes. End the evening with a traditional marshmallow roast under the starlit sky.

Check the FWP website or call (406) 994-6934.

Marshmallows under the stars.

GEOCACHE CHALLENGE

Missouri Headwaters State Park, Saturdays, May–September. Find hidden items in the Missouri Headwaters area during this summerlong event. Geocaching is an outdoor treasure-hunting game in which participants use a GPS receiver or other navigational techniques to find containers (called "geocaches" or "caches"). A new theme will be announced each week, and then participants will be challenged to decipher clues and read interpretive signs to find the caches in exchange for fun prizes.

Check the FWP website or call (406) 994-6934.

Find the treasure at Missouri Headwaters.

Last May Helena photographer John Lambing was driving the backroads of the Swan Valley near Condon when he spotted this large pond with the snowcapped Swan Range in the background. The shot from shore included too much emergent vegetation in the frame, so Lambing waded out into thigh-deep water where he could get a better picture. "I was lucky," he says. "It was one of those rare days where you have blue skies and the water is dead calm—perfect for reflecting the mountains. I stood there for about a half-hour, taking shots between puffs of wind that would occasionally ripple the water. I got soaked, but I didn't drop my camera, and my boots and pants dried off in a few hours." ■

GEORGE WUERTHNER

FWP's popular Fishing Access Site Program lays out a welcome mat to the state's scenic public lakes and rivers.

BY DAVE CARTY

Come on in,

On a blustery October morning, the Black's Ford Fishing Access Site (FAS) on the Madison River is nearly empty. Same for the Cameron Bridge FAS on the lower Gallatin River, as well as the hugely popular Cherry River FAS on the East Gallatin just north of Bozeman. From June through September, these areas are packed with cars, boaters, hikers, and anglers. But on this fall day, with a storm moving in, nobody is interested in fishing.

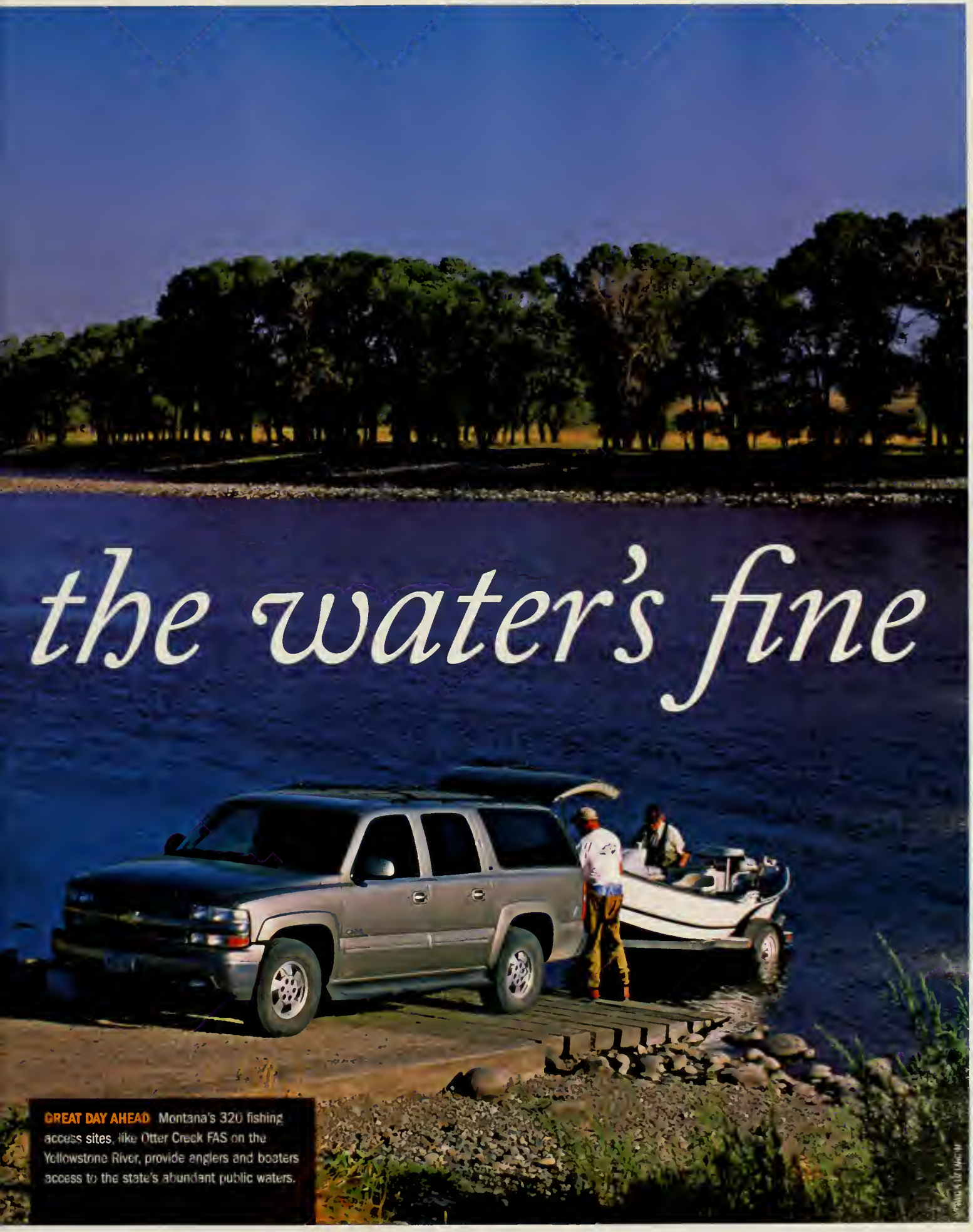
Well, almost nobody. Just above Black's Ford, Harrison Trask of Bozeman prepares to lead a group of buddies on an expedition into the teeth of the approaching storm. He stops to talk, the tip of his fly rod swaying in the strong wind.

"For me, it's all about fishing," says Trask, who looks like the quintessential Montana trout angler (or cowboy, for that matter): tall and lanky, with a craggy, windburned face. Trask moved to Montana 16 years ago from St. Louis specifically to fish. He rattles off a list of fishing access sites he's used over the years on the Madison, Yellowstone, Gallatin, Beaverhead, and other famous trout rivers. Trask knows that he can indulge his love of fishing largely because Montana's stream access law and ongoing acquisition of access sites allow him to fish waters he otherwise wouldn't be able to. "Stream access is the thing," he states emphatically. "That should never change."

Montana residents hold sacred their opportunity to wade, drift, and boat along the state's 41 rivers and 52 game fish lakes. And access to trout water is the number one draw for tens of thousands of anglers who pack resorts, lodges, hotels, and restaurants across Big Sky Country from Memorial Day to Labor Day. In response to that demand for access, Montana Fish, Wildlife & Parks has established 320 fishing access sites on flat and moving water across Montana over the past three decades. But the access sites are getting harder, and more expensive, to come by. The story of how those access sites were acquired—many involving contentious meetings with neighboring landowners—illuminates Montana's ongoing struggle to balance public and private property rights. It also speaks to the passion that anglers have for spending time on Montana's scenic rivers and reservoirs in search of fish.

PORTALS TO PUBLIC WATER

Under Montana's Stream Access Law, all Montana streams and rivers are public, as are



the water's fine

GREAT DAY AHEAD Montana's 320 fishing access sites, like Otter Creek FAS on the Yellowstone River, provide anglers and boaters access to the state's abundant public waters.

the river beds up to the high-water mark (the natural mark on banks showing where the river runs highest during normal years). However, anglers and other recreationists may only gain access from public bridges, with permission from a landowner whose property borders the water, or from public lands such as a fishing access site.

Managed by the FWP Parks Division, fishing access sites are public lands, ranging from 1 acre to 600 acres, along rivers and lakes where anglers and other recreationists can wade or launch their boats. The sites usually contain a boat ramp and vault latrine, many have camping areas, and most are also used for hiking, bird watching, camping, and hunting. Some sites are on lakes and reservoirs; most are on rivers and streams. No state tax dollars go to the FAS Program. All acquisitions, improvements, and maintenance are funded by fishing license fees, matching federal dollars, and money from state vehicle registration fees.

Because river property has always been valuable, FWP has paid a premium for fishing access sites since the program's inception in the 1970s. But starting in the 1990s, as the trickle of new landowners from out of state became a flood, land prices have skyrocketed. FWP often finds itself competing with multimillionaires for prime streamside parcels. According to Dick Oswald, FWP fisheries biologist at Dillon, the price for an acre of irrigated ranch land in the Ruby River Valley during the 1990s went from $1,500 to $5,000 in just a few years. "Immediately, our fishing access program for the Ruby became the poor kid on the block," he says.

In recent years, the Montana Legislature has approved an average of $750,000 per biennium for FAS acquisitions. That may seem like a lot of money until you consider that FWP recently paid more than a half-million dollars for a single 5-acre FAS on Echo Lake near Kalispell.

"In years to come, we'll consider that a bargain, because it's a hugely important site on a great fishing lake close to a major urban area," says Allan Kuser, who coordinates the FAS Program. "But it also used up more than half our entire acquisition budget for two whole years and kept us from pursuing other important sites."

In addition to acquisition costs, fishing access sites require the installation of boundary fencing, roads, parking areas, boat ramps, signs, and latrines. The sites also require regular road grading, trash pickup, ramp repair, weed control, caretaker services, and other general maintenance.

BARRY & CATHY BECK

NOT JUST FOR BOATS Fishing access sites also provide wading anglers with access to some of the best trout river reaches in Montana.

FWP managers struggle over whether to put their limited funds into buying new access sites or managing existing ones. "It's a tough decision," says Missoula region park manager Lee Bastian. "A few years from now, land will be priced so high we can't afford anything." And yet, adds Kuser, "every time we acquire a new fishing access site, we have to increase our budget for developing and maintaining it. Right now we're struggling to find that balance."

WORKING WITH THE NEIGHBORS

FWP acquires three to six fishing access sites per year. "The main thing we try to do with new acquisitions is fill access gaps on lakes and rivers," Kuser says. Another factor is whether a site has a willing seller. If it does, and once the wheels are in motion for an acquisition (most of the state's fishing access sites are fee title rather than leases), the big question becomes: What will the neighbors think? Many people who might otherwise support the concept of public access to rivers are less than thrilled—often for good reason—when a fishing access site is planned for next to their home. In the last decade, traffic at some sites near the state's urban centers has increased dramatically, creating problems that did not exist when the program began 30 years ago.

"The neighbors around some of these sites can become frustrated," Bastian says. "Their driveways and gates can get blocked, there can be more garbage and litter around the area, and sometimes they have vehicles speeding past their homes."

Whenever possible, FWP meets with landowners next to a proposed fishing access site and tries to address their concerns. "We had a situation like that with a site in the upper Bitterroot Valley," Bastian says. "A landowner was willing to sell us the property, but we had several neighbors concerned about dust the increased traffic would create on the gravel road, the visual impact of a vault latrine, and inappropriate behavior such as kids partying there at night."

FWP met with the homeowners and agreed to pave several hundred yards of road to control dust. And instead of a permanent latrine, the department installed smaller, portable ones painted to blend in with the environment. "We also planted a row of

Dave Carty is a freelance writer in Bozeman.

PUTTING ANGLERS ON THE WATER
Clockwise from top left: Kids fish for bass and sunfish at Frenchtown Pond FAS near Missoula; access sites at Fort Peck, Hauser, Whitetail, and other reservoirs provide access to walleye fishing; preparing to fish the Big Hole River from Jerry Creek FAS; fly-fishing the Ruby River at Alder Bridge FAS.

trees as a visual barrier, and we agreed to manage the site for day-use only—no overnight camping," Bastian says. "Most residents in the area seem to be satisfied with what we've done."

Another thorny public access conflict emerged on the Ruby River in the mid-1990s. Several new landowners were opposed to public floating on the productive trout river. Tired of being shut out of a public river, anglers began illegally crossing private land to reach the Ruby. The situation got so hot that then-Governor Marc Racicot intervened and appointed a citizens' task force to resolve the issue. Based on the task force's recommendations, FWP purchased one fishing access site and leased another five. The six new sites opened up miles of fishing water and have drastically reduced trespassing on private land.

FWP and landowners often work out mutually beneficial arrangements. On the Beaverhead River's 600-acre Henneberry FAS, for example, Oswald found a way to increase public access and also provide additional grazing for a rancher whose property abuts the FWP holdings. "The landowner supports public access," says Oswald, "so we worked out an agreement that allows him limited cattle grazing on the public land in early spring and late fall, when fishing traffic is relatively light, and then he allows public access on his land year-round."

On some rivers, more public access is not always desirable. For example, the lower Blackfoot River over the past decade has seen rising use by anglers, floaters, and especially inner-tubers. Recreational conflicts on the river have grown, as have trash and traffic problems. "That's a river already seeing way too much use," says Bastian. "Adding more fishing access sites could worsen the problem by making it easier for even more people to get on the river."

Increased use is a never-ending challenge. In the mid-1980s, fishing access sites received roughly 1.6 million visits per year. By 2005, the number had soared to 4 million visits, with no letup in sight. At some sites, the increase has fueled conflicts between landowners and FAS visitors. "We try to find ways to manage these conflicts," says Kuser, "but the only way this system will work with the ever-growing use is if recreationists respect the rights of landowners, and landowners acknowledge the rights of recreationists."

"That's a river already seeing way too much use. Adding more fishing access sites could worsen the overcrowding problem."

Increased FAS use has also led to more vandalism. Each year FWP crews replace shot-up signs and latrine doors, burned picnic tables, and other destroyed facilities. "That's labor and money that could be going to other maintenance, such as grading roads," Kuser says.

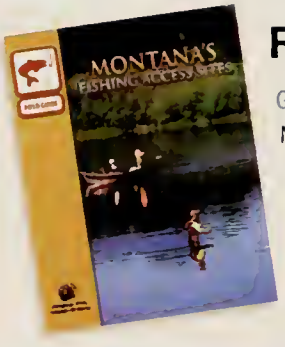
Though vandalism continues to grow, most visitors would never think of abusing a FAS. Trask says he and many other anglers regularly pack out trash they find at the sites.

Public support for fishing access sites shows up in other ways. Missoula developer Michael Priske and his business partner Todd Peters purchased a 10-acre plot of land along the Clark Fork River roughly 4 miles west of Missoula to subdivide. Under state subdivision law, a developer has the option of providing a portion of the land to the county for public park land or paying the county a cash equivalent. The developers worked with FWP and Missoula County officials on a plan that established park land next to a small piece of county land. The county leased its existing and newly acquired land to FWP, which the two entities jointly developed into Kona Ranch Bridge FAS.

"The reason I moved to Montana is because I love all the freedoms we have here, including good access to public land," Priske says. "Cutting off access to the river just didn't seem right to us."

Kuser says that over the history of the program, several landowners have even made outright donations of land to be used as fishing access sites. Few anglers have such opportunities, but all anglers, through their fishing license dollars, contribute to Montana's beloved system of lake and river fishing access sites. And in doing so, they have provided themselves with opportunities to fish, wade, and float lakes and rivers legendary across North America.

"What's really remarkable about Montana's fishing access sites," says Trask, the Bozeman angler, "is how they allow an angler of modest means to go out and fish the same pristine and scenic waters as the richest guys in the world."



FREE NEW FAS BOOKLET NOW AVAILABLE

Get your free copy of FWP's new *A Field Guide to Montana's Fishing Access Sites*. The booklet describes Montana's 320 fishing access sites across the state, including maps, photos, and detailed information about access, accommodations, and opportunities to fish, hunt, and watch wildlife. Order yours by calling (406) 444-2535, or pick one up at the nearest FWP office. To learn more about Montana fishing access sites on-line, visit fwp.mt.gov and search "find fishing access site." There you'll find the locations of all fishing access sites, including information on accessibility for people with disabilities, RV access, directions from the nearest town, FAS size, camping availability and fees, fish species present, and more.

NO PLACE LIKE THE WATER Anglers and boaters cherish Montana's national reputation for extraordinary lake and river access, whether it's to see a cutthroat sip a mayfly, to battle a monster brown, or simply to be on the water when the sun slips beneath the horizon and paints the evening sky.

JEFF HENRY

JOHN SAFFNO

Follow That Fish!

FWP's three Adopt-a-Fish Programs use the Internet to put students into the underwater world of trout, sturgeon, blue suckers, and other Montana fish species. BY DAVE HAGENGRUBER

Beginning on the Continental Divide about halfway between Glacier National Park and Helena, the Sun River flows from the high and wild country of the Bob Marshall Wilderness east for more than 130 miles to its confluence with the Missouri River near Great Falls. In its upper reaches, the Sun winds between the jagged reefs of the Rocky Mountain Front, home to grizzly bears, bighorn sheep, mule deer, and elk. Here the river is cold, fast, and clear enough to hold westslope cutthroat, rainbow, and brook trout. The trout provide sport for anglers and food for ospreys, otters, and other predators. In recent years, some of the fish have also been providing information. These research fish trail long thin antennae as they glide silently through the water, sending data about their movements back to land. Tracking the trout are Montana Fish, Wildlife & Parks biologists, as well as students taking part in one of the department's three Adopt-a-Fish Programs.

For the past several years, elementary school classrooms from nearby communities have traveled to the Sun River Canyon in the fall to watch FWP biologists capture rainbow and brook trout and surgically implant tiny radio transmitters into the fish. The students then "adopt" and name a particular trout and follow its movements on classroom computers. They watch the fish as it moves up and down the river through the low flows of winter and the high flows of spring runoff, trying to avoid predators and spawn successfully.

The program, along with two others conducted on the Blackfoot and Clark Fork rivers and the lower Missouri and Yellowstone rivers, provides local students an opportunity to learn about fish behavior, fish habitat, and the water flow needs of fish. Participating students also have the chance to see firsthand how biologists conduct fish monitoring projects. Then they and other students and adults can follow the progress of the fish on the FWP website. Biologists regularly post GPS (Global Positioning System) coordinates of the fish and comment on the movement and fate of the closely monitored specimens. The program was created to show Montana students and others some of the challenges facing Montana's fish and the rivers where they live.

WATER SHORTAGE

Dave Yerk is the FWP biologist responsible for managing the upper Sun River fishery and also the driving force behind the Sun River Adopt-a-Fish Program (originally established by Steve Leathe, FWP regional fisheries manager in Great Falls.) Yerk and his crew spend a few days each fall capturing trout and conducting the three-minute surgical procedure to implant the radio trans-

TROUT TRAVELER FWP fisheries technician Paul Hamlin holds a rainbow trout fitted with a radio transmitter that these students from nearby Fairfield School were soon following on their classroom computers. The fish traveled along the Sun River, which flows from the Rocky Mountain Front into the irrigated plains to the east.

mitters. The FWP crews return throughout the spring and summer with telemetry receivers to locate the fish, and then plot the GPS locations to an Internet mapping program. From their classrooms, students in the nearby towns of Choteau, Fairfield, Greenfield, and Power follow the movements of the fish. One thing they learn is that trout have a tough life in the scenic river.

The major challenge to the fish is created by Gibson Dam. Built in the late 1920s, the 200-foot-tall structure impounds the Sun River within the scenic canyon. The Bureau of Reclamation (BOR) operates the dam and regulates the river flow to meet the water needs of farms and ranches on the prairies stretching eastward from the Rocky Mountain Front. Water passes through the dam into the river below, flowing 3 miles through the canyon to a smaller 132-foot-tall dam, where it is diverted into an elaborate series of irrigation canals.

Each spring Gibson Reservoir fills with snowmelt from the surrounding mountains. The BOR then releases water from the dam in torrents for downstream irrigation. The trout below the dam try to survive in the massive flows during dam releases, and later in the low flows during summer and fall.

> "Many of these kids use this water on their farms. I don't think they make the connection that it comes from this river. Focusing on an individual fish makes it even more meaningful for them."

Downstream from the diversion dam, flows eventually dwindle to barely a trickle.

FWP established the fish-following project to bring local fifth- and sixth-graders into the Rocky Mountain Front to see where the Sun River comes from, how it is used, and how that use affects fish populations. "Thirty years from now, these students will be the adults in the community who decide what happens to the river and its water," says Yerk. "My hope is that the experience they have with these fish and this river right now gives them a basic understanding of the whole system and how it all ties together, and an appreciation for just how special this place really is.

"There's no question about the importance of agriculture to this entire area, and that the water from the Sun is vital to irrigators," Yerk adds. "But I also believe that we can work with irrigators to improve efficiency, and make that water go further for both irrigators and the trout fishery."

During the fall field trips up the Sun River Canyon, the classes also tour the dams and canals with a representative of the local irrigation district. One teacher says her students are fascinated to learn that the water in the irrigation canal running past their school begins in a wilderness environment. "Many of these kids use this water on their farms," says Susan Kalanick. "I don't think they make the connection that it comes from this river. Focusing on an individual fish makes it even more meaningful for them."

Students return to the canyon in the spring, where they join Yerk as he uses a radio receiver to locate their adopted trout. "The first fish our class adopted, a female rainbow trout, the kids named Jill," says Kalanick. "We were all eager to follow her and see what would happen." Unfortunately, the trout soon disappeared from the Sun. When Yerk finally found the transmitter, it was high on a ridge above the river. "An osprey or eagle must have got her," says Kalanick. "The kids were really depressed over the loss of their first fish."

The fate of other trout in the Sun River study varies widely. A few have remained near where they were first captured. Several have plunged to their deaths over the top of the diversion dam. Many have been caught and eaten by anglers or predators, while others have simply disappeared, their fates unknown. One trout traveled from the river into an irrigation diversion and ended up 12 miles away in Pishkun Reservoir, where it likely became a meal for a northern pike.

Northerns have also devoured radio-tagged trout that were part of the Blackfoot and Clark Fork rivers Adopt-a-Fish Program, the first of its kind in Montana to bring live research on native fish and their movements directly into rural classrooms. A cooperative effort by FWP, the Bureau of Land Management, the U.S. Fish and Wildlife Service, Northwestern Energy, and the Blackfoot Challenge (a landowner-based conservation group), the program initially focused on native bull and westslope cutthroat trout. It later evolved to include native largescale suckers as well as introduced northern pike, which have found a home in the still, weedy waters of Milltown Reservoir. The northern pike grow fat on a steady flow of cutthroat trout—including several carrying radio transmitters—blocked by the dam during their downstream post-spawn migration.

Dave Hagengruber coordinates the FWP Aquatic Education Program.

DAVE HAGENGRUBER, MONTANA FWP

NATE McCLENNING/MONTANA FWP

STREAMSIDE SURGERY Above: FWP crews insert the tiny transmitters (near right) into trout on the Sun River. Students from surrounding communities visit Gibson Dam (above right) to learn how water releases for irrigation affect trout survival. On the Sun, Blackfoot, and Clark Fork rivers, students see how biologists follow trout along the stream using radio receivers. On the Yellowstone (far right), FWP crews follow far-ranging tagged fish in boats.

The research looks at how Milltown Dam affects fish and fish movement on the Blackfoot and Clark Fork. The two rivers meet at the dam a few miles west of Missoula. Researchers, led by FWP fisheries biologist David Schmetterling, capture fish blocked from upstream movement by the dam, implant them with radio transmitters, and release the fish above the dam. FWP crews and students from several local classrooms monitor the fish swimming upstream to reach spawning sites in tributary streams.

The research has proved that the dam creates a biological barrier to federally protected bull trout as well as westslope cutthroat, a species that has been petitioned for listing under the Endangered Species Act. That information, says Schmetterling, factored into an Environmental Protection Agency decision in 2003 to require that the dam be removed.

CAN YOU HEAR ME NOW?

Turning fish into mobile radio units is a technological challenge. The transmitters must be small and light for the fish to carry them, but batteries powering the transmitters must be strong enough to last at least a year (so biologists can gather the data they need). New technology allows batteries to be powerful yet tiny. And now transmitters can be programmed to turn themselves off to save battery life over winter when the fish are inactive, and then turn back on in spring when the fish start moving more.

Implanting the transmitter is a quick procedure requiring two people. The captured fish is anesthetized using a chemical dissolved in water, which is poured over its gills (also supplying the fish with oxygen). The

DAVE HAGENGRUBER/MONTANA FWP

DAVE HAGENGRUBER/MONTANA FWP

NATE McCLENNING/MONTANA FWP

fisheries biologist or technician then makes a small incision in the fish's abdomen and places the transmitter inside the body cavity, closing the opening with sutures. The nearly invisible antenna, thick as heavy monofilament fishing line, trails behind the fish. The fish have a remarkable ability to survive this seemingly traumatic procedure, showing survival rates that often exceed 90 percent.

Each transmitter has a specific code, enabling biologists to track hundreds of individual fish with a single receiver that can pick up a signal from up to a mile away. FWP then posts GPS data points of the fish's location on its website, where anyone can follow the fish's progress. FWP crews have also set up ground stations at the mouths of tributaries to the lower Missouri and lower Yellowstone rivers. The stations automatically record tagged fish as they swim by, and biologists stop by periodically to download the locations onto laptop computers.

Local elementary students are the primary focus of the Adopt-a-Fish Programs, but thanks to the Internet, students from throughout the United States are monitoring the movement of Montana fish. "We have a college wildlife class in Virginia and schools in Wyoming that have all adopted fish," says Mark Henckel, outdoors editor for the *Billings Gazette*, who manages the website for the Adopt-a-Fish Program on the Missouri and Yellowstone rivers.

THE SPECIES NOBODY SEES

The eastern Montana program got its start in 2002 after Henckel visited three students at Benzine School, 25 miles north of Sand Springs in Garfield County. The kids were interested in fish and came up with the idea of an eastetn Montana Adopt-a-Fish Program they could follow on-line. Henckel talked with Yerk, who was stationed at Fort Peck at the time conducting research on the Missouri River, to see if FWP was interested. After Yerk started the Missouri–Yellowstone Adopt-A-Fish Program in 2002, he transferred to Choteau. FWP biologists Dave Fuller and Matt Jaeger have since expanded the program with Henckel to include additional species and more areas. In 2006, says Henckel, 31 different classrooms took part.

The Missouri–Yellowstone program focuses on the native fish of eastern Montana, including paddlefish, pallid sturgeon, shovelnose sturgeon, burbot, channel catfish, and blue suckers. "These are fish nobody ever sees," says Henckel, "and they certainly aren't species most people would associate with Montana. A teacher in Arizona, whose class has adopted these warmwater fish, told me her kids could not believe species like paddlefish and shovelnose sturgeon actually existed."

The *Billings Gazette* posts weekly updates on the fish throughout the spring, and Henckel says he gets a steady stream of e-mails "from people excited to see what's happening with the fish."

FWP researchers have found that these big-river species like to travel. One paddlefish originally tagged in the Wolf Point area of the Missouri River in fall 2004 (later adopted in 2005 by a sixth-grade class at Boulder Elementary in Billings and named Squishy) migrated up the Missouri and the Milk River the following spring. The students followed its progress as it dropped back downstream, only to repeat the whole round trip a second time. Soon the paddlefish got the urge to roam again and descended 225 miles downstream to Lake Sakakawea in North Dakota, where it spent the summer. In September, the paddlefish migrated back up the Missouri River to the very same spot where it was first captured—covering at least 670 river miles in one year.

FWP biologists say such long-distance travel is normal for paddlefish. They also say what Squishy did was nothing new: Paddlefish and other native warmwater fish have been moving up and down the watery river highways for thousands of years. What is new is that students and interested adults across Montana and the United States are now traveling with them.

You can follow the fish yourself by visiting fwp.mt.gov and searching for "adopt a fish."

$50 an ounce

Can Montana's paddlefish survive the growing international demand for their eggs?

THigh-deep in the muddy Yellowstone River, Frank Wells is pulling on his fishing rod like a man hauling a piano up a flight of stairs. His forearms quiver, the cords in his neck bulge, and his fishing line sings like a guitar string as the fish he has hooked turns into the strong current and pulls line from his oversized reel.

Wells, who is from Wyoming, is going one-on-one with a paddlefish, the largest fish species in eastern Montana, and he's determined to land it. Keeping the rod's tip up and its lower section wedged between his arm and body, Wells gains a few feet of line each time the fish turns into slack water. After an exhausting 20-minute fight, he guides the fish to the shallows, where his fishing partner Mike Smith slides a hand under its jaw and drags it to shore. >>

STORY AND PHOTOS BY ANDREW McKEAN

MUSCLING ONE IN Standing on the flooded banks of the Yellowstone River below Intake Dam near Glendive, an angler struggles to haul in a paddlefish with a fishing rod thick as a pool cue. Thousands of people from around the region take part in the annual springtime snagging season, providing an economic boost to local economies.

Gray flanks quivering under the bright May sun, the paddlefish appears as tired as Wells. It weighs 72 pounds but looks even heavier, with a mouth large enough to hold a volleyball and a belly round as a pony keg. The sexually mature female is full of eggs. A fish this size might hold roughly 400,000 BB-sized ova weighing a toral of 15 pounds.

Those eggs, key to the species' longevity over the last 200 million years, could also threaten its survival. Prairie business boosters, caviar fanciers, and black marketers alike are positioning themselves to profit from the increasingly valuable charcoal-colored caviar derived from Yellowstone River paddlefish. Keeping a watchful eye on the growing commercial trade are Montana fisheries managers. Knowing that paddlefish populations are vulnerable to exploitation, the biologists try to find a balance between allowing adequate sport and caviar harvest without endangering the species' survival.

THE PADDLEFISH STOPS HERE

The epicenter of paddlefish harvest in eastern Monrana is Intake Dam, near the North Dakota border just off Montana Highway 16 between Glendive and Sidney. Five feet tall and 700 feet wide, the rock weir spans the Yellowstone River and diverts part of the river's flow into a network of irrigation canals. In spring, as paddlefish move from North Dakota's Lake Sakakawea (an impoundment of the Missouri River) and up the Yellowstone (a Missouri River tributary) to spawn on shallow gravel bars, they run into the dam. During some years, thousands of paddlefish stack up in the swirling, chocolate-colored water below the structure.

Catching these migrating fish is not fishing in the traditional sense. Paddlefish eat only zooplankton, which they consume by swimming, massive mouth agape, through clouds of the microscopic organisms. The zooplankron are filtered from the water by gill combs called rakers. (Scientists believe the fish uses its spatula-shaped nose, called a rostrum, to find the zooplankton, perhaps by sensing electromagnetic signals emitted by the tiny organisms.) Paddlefish won't eat bait, so the only way to catch them with hook and line is to use large treble hooks to snag the massive fish and stout saltwater tackle to horse them into shore.

Paddlefishing is at the other end of the style spectrum from fly-fishing. In fly-fishing, the goal is to delicately set a dainty bit of feather and fuzz above an indifferent trout sipping insects off the water surface. Paddlefishing is more like dragging a river for sunken logs. When the fishing is good, snaggers can catch several fish in a day casting into the Yellowstone below the dam. Male paddlefish run 20 to 30 pounds, and females range from 40 to over 100 pounds. The height of the paddlefish run at Intake is usually around Memorial Day weekend.

PADDLEFISH
eggs from eastern Montana end up on chilled glass plates in Japan, New York City, and Paris....

The lower Yellowstone and Missouri rivers in eastern Montana share one of only a few reproducing paddlefish populations in the United States. (Another distinct population in Montana exists upstream from Fort Peck Reservoir.) The fish need the heavy flows of large rivers to trigger their spawning run, and they reproduce best in turbid waters that hide their eggs from predators. Juvenile paddlefish require warm big-river backwaters rich in zooplankton.

The paddlefish is among the most primitive and ancient fish in the world. Evolutionary biologists trace it back to the Triassic period, even before the arrival of most dinosaurs. Somehow, paddlefish have managed to avoid extinction despite continental drift, drought, and the glaciers that have periodically rerouted the big rivers where they live. Their remarkable fertility helped paddlefish survive these habitat changes. A single female can carry a half-million eggs. When spawning and rearing conditions are right, the sheer number of young paddlefish in the system ensures that some will survive.

FROM DAWSON COUNTY TO TOKYO

The paddlefish's abundant eggs have kept the species alive, but they also could threaten its survival. Like those of sturgeon, paddlefish eggs can be made into caviar coveted by connoisseurs throughout the world. As import restrictions have limited the availability of caviar from the rare Caspian Sea sturgeon in southwestern Asia, paddlefish roe—made into caviar by experts who preserve the eggs in special salts—has become increasingly valuable. The retail price of bulk paddlefish caviar has jumped from around $80 a pound a decade ago to more than $300 a pound this year. A single ripe female contains eggs that, when prepared properly for conversion into caviar, sell for over $1,000.

Twenty years ago, paddlefish eggs were considered garbage, useless offal discarded along with the guts and heads of snagged paddlefish along the shores of the Yellowstone River. No longer. Today, the eggs are carefully harvested in a gleaming aluminum trailer parked beneath the cottonwood trees at the Intake Fishing Access Site. The trailer is owned by the Glendive Chamber of Commerce, which hires processers to clean and package all the snagged paddlefish, which is done in exchange for eggs retrieved from the females.

Before processing, the fish are weighed and measured by FWP crews, who also remove a piece of jaw. (Biologists later examine the growth rings of the bone under a microscope to determine the fish's age.) A conveyor belt takes the paddlefish into the trailer, where caviar specialists clean each fish with a few deft knife strokes. They slit open the belly of females and remove the glistening eggs, which are gently placed in a cooler. Later, the eggs are sprinkled with sea salt, potted in quart jars, and frozen. The paddlefish itself is filleted and the meaty steaks are

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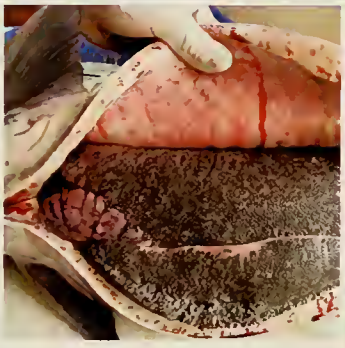
Andrew McKean manages the FWP regional Information and Education Program in Glasgow.

CAVIAR FACTORY Like those of sturgeon, the eggs of paddlefish can be made into caviar that is sold worldwide. At Intake Dam, FWP biologists weigh and measure the paddlefish before the fish are cleaned and filleted. The steaks are packaged and returned to anglers, and the eggs are washed, mixed with special salts, and frozen. To prevent the caviar and sport harvest from removing too many of the ancient fish, FWP crews (above) continually monitor the population to see how it is holding up.



packaged for the angler to take home.

The caviar can end up nearly anywhere in the world. Paddlefish eggs from eastern Montana are served on chilled glass plates in Japan, New York City, and Paris, where diners pay up to $50 an ounce for the chilled, salted delicacy scooped with mother-of-pearl spoons (never metal) onto toast points.

The sale of game fish and wildlife meat is illegal in Montana. This prohibition discourages the sort of market hunting and fishing that nearly wiped out wildlife populations across the country in the late 19th century. But there's a loophole.

In 1989, a group of eastern Montana civic boosters lobbied the state legislature for an exemption that allows the Glendive Chamber of Commerce to collect and sell paddlefish eggs. Thirty percent of the profits pay for FWP paddlefish research, management, and fishing-site improvements. The rest stays with the chamber, which uses it to fund cultural, historical, and recreational projects across eastern Montana. Since the first caviar was marketed in 1990, the chamber has distributed more than $500,000 to buy playground equipment, bankroll swim teams, install a disc golf course, and more.

"We've turned fish eggs into baseball uniforms and museum exhibits," says Norm Unterseher, one of several local volunteers who coordinate the paddlefish egg collection and marketing. "This is a real success story for eastern Montana. We took something nobody wanted and we've done a lot of good with it."

PADDLEFISH FOREVER

There's no question the caviar harvest program is helping Glendive and surrounding communities. But could it be harming the paddlefish population? With its share of the caviar profits, FWP has funded an extensive study of the Yellowstone paddlefish population. Biologists have learned that both caviar collection and paddlefish conservation can succeed—as long as marketers and managers keep the long-term health of the fishery as their top priority. "Throughout the world, the history of caviar is the history of fish population exploitation," says Brad Schmitz, FWP's regional fisheries manager for southeastern Montana. "If caviar stocks are not tightly regulated, the fish population can eventually disappear."

FWP, working cooperatively with North Dakota, monitors the paddlefish population's progress from year to year. It also regulates harvest to prevent too many fish from being removed from the population. "Like most fish and wildlife management, what we're doing here is like managing a bank account," says Schmitz. "You can't withdraw more than you put in, and we keep a very close eye on the withdrawals, or harvest."

Schmitz and University of Idaho fisheries professor Dennis Scarnecchia, an authority on sturgeon and paddlefish who helps monitor the Yellowstone River stock, estimate the total adult population of paddlefish in North Dakota and Montana at around 30,000 fish. Working with North Dakota biologists, they have determined that 2,000 can be harvested each year without harming the population.

Factored into the safe harvest number is the fact that paddlefish are a long-lived species whose females don't reach sexual maturity until ages 17 to 20 and only spawn every third year. As a result, each ripe female that is harvested represents a significant share of that year's reproductive potential that has been removed from the population.

Montana and North Dakota have agreed to split the harvest, with a quota of 1,000 fish each. Montana has exceeded its quota some years, cutting into a population that surveys indicate has been slowly declining over the last 20 years. In addition to overharvest, the decline is likely due to the decade-long drought that has depleted Lake Sakakawea, reducing the amount of shallow reservoir habitat that juvenile paddlefish need. (The slack water of the full reservoir is like a zooplankton "sink" that provides food for young paddlefish.) Until the reservoir fills again, Schmitz expects the production

DOWN THE LONG ROAD Paddlefish are prehistoric fish that have lived in North America for millions of years. To help the Yellowstone population survive at least a few hundred more, biologists tag fish in the lower jaw and then monitor the progress of those individuals from year to year. If that research indicates the population is declining, the FWP Commission will reduce harvest quotas, as it has done this spring.

GLEN MEIER

of enough new young fish—what he calls "the interest on the account"—to lag behind the harvest of older fish. Other obstacles to paddlefish reproduction: the dams at Intake and Fort Peck, which block spawning runs; reservoirs, which have flooded gravel bars historically used for spawning; and irrigation projects that can deplete rivers of water.

HOPEFULLY OPTIMISTIC

To help offset impediments to paddlefish procreation and keep Montana's harvest from exceeding the 1,000-fish quota, FWP has instituted new regulations this spring (*see box below*). Schmitz believes the new regulations will help Montana sustain its paddlefish populations and buck the worldwide trend of losing caviar-producing fish populations. But that will only happen, he says, if long-term conservation takes priority over short-term recreational and economic benefits. "Because you won't have those benefits down the road if you don't take measures to ensure you harvest the resources sustainably," he explains.

For paddlefish, "down the road" means looking many decades ahead. "Managing paddlefish happens in a whole different time frame than for other fish species," says Schmitz. "They mature slowly and don't spawn every year, so we might not see the ramifications of recent overharvest for 20 years or more."

For years FWP was at loggerheads with the Glendive Chamber of Commerce over reducing the harvest quota. The chamber wanted more money for community projects; FWP was concerned the fishery was being overharvested. Recently the two sides have come to an agreement over the importance of the fishery's long-term health and the need for new harvest restrictions.

"Paddlefish are like any other wildlife species and have to be managed now so they're around in the future," says Kim Trangmoe, director of the chamber's caviar program. "These fish have been around for millions of years, and if we all manage them right they'll be around for millions more. In the meantime, I think everybody can benefit by managing the caviar as a beneficial byproduct of the paddlefish."

> **"PADDLEFISH** are like any other wildlife species and have to be managed now so they're around in the future."

Also benefiting from this new cooperation are the recreational snaggers. The paddlefish fishery is a unique resource providing important outdoor recreation in eastern Montana each spring for thousands of people like Mike Smith. "I wouldn't miss it," says the Billings snagger of his annual pilgrimage to Intake each spring. "It's a tradition that for me kicks off the summer."

It also kicks off Glendive's tourist season. The recreational fishery gives a much-needed boost to motels and restaurants each May as resident and nonresident paddlefish pursuers descend on the city. Successful snaggers, in turn, go home with a freezerful of trimmed and packaged fillets, and fish remains are properly disposed of, keeping the fishing access site clean.

Schmitz notes that, in some ways, even the paddlefish population benefits from the snagging season and caviar harvest program. The proceeds continue to pay for monitoring that FWP might not otherwise be able to do. Also, by channeling the caviar collection through the chamber of commerce, Schmitz and others in the department can work directly with the people harvesting the eggs. If the egg harvest station didn't exist, Schmitz says, a black market could emerge for paddlefish eggs, and overharvest could become uncontrollable.

For now, FWP and the chamber have a common vision for sustaining the Yellowstone River paddlefish stocks for the good of the community, the recreational fishery, and the fish population. But always looming on the horizon is the international caviar market, which could drive egg prices ever skyward and put new pressures on the paddlefish population. Just this past February, a new buyer from Japan toured the caviar production facility at Intake, and others will no doubt continue to court the chamber. Habitat loss, drought, and the species' slow rate of reproduction are major impediments to the long-term conservation of Montana's paddlefish. But restraining the insatiable appetite of the world caviar market may ultimately prove the most difficult challenge of all.

NEW SNAGGING REGULATIONS AT INTAKE

Starting in spring of 2007:

- FWP will close the snagging season at Intake when 800 fish have been harvested (the agency factors in an additional harvest of 200 paddlefish not at Intake).
- If it appears that total harvest along the Yellowstone will exceed Montana's 1,000-fish quota, FWP may close the season with 24 hours notice.
- To reduce unrecorded harvest, snagging will be allowed only during daylight hours.
- To boost the length of the paddlefish season, harvest will be allowed only four days each week. Sundays, Mondays, and Thursdays during the season are now reserved for catch-and-release snagging only (the hardy fish almost always survive the rigors of being snagged and hauled in if they are released back to the water quickly).

For additional information on Montana's paddlefishing regulations, visit the FWP website at fwp.mt.gov.

Searching for Rock Art

Story and photos by Craig and Liz Larcom

Robert Thomson doesn't know it yet, but he is getting close to solving the case of the missing bear paw pictograph. Since the naturalist began working at Ulm Pishkun State Park near Great Falls in 2004, he has set aside other tasks four or five times a year to scour the mile-long sandstone cliffs over which, for hundreds of years, American Indians drove bison. Finding and inventorying resources such as rock art is the first step in his primary responsibility of interpreting the park, which also includes protecting and preserving its natural and cultural resources. Locating the artwork has also, he says, become a personal mission.

Thomson began by reading previously published reports on archaeological research at the buffalo jump. He has located every pictograph mentioned in the reports excepr one: the red ochre bear paw. A 1992 report mentions it, but after months of fruitless searching, Thomson wonders if the paw has faded away or perhaps fallen from the cliff along with the crumbling sandstone.

CLIFF HANGER Robert Thomson, naturalist at Ulm Pishkun State Park, points out an elk pictograph, taking care not to touch the delicate art, which can be damaged by skin oils. Thomson believes the faded image above his left hand is a bison pictograph, one of dozens of images he has inventoried at the park.

Today Thomson sets out to continue inventorying pictograph (painted) and petroglyph (carved) rock art, while also keeping an eye out for the bear paw. When we reach the first pictographs, 100 yards west of where a public trail descends the cliff, he points to an oval with two long arcs extending above and two legs below. "This is an elk," he says. "You can see the body here and the antlers here." Thomson takes care to not touch the art, which is extremely vulnerable and can be damaged by the skin oils on his fingers. Then he moves his hand to the left. "This is a horribly faded buffalo. See the big, thick head." His finger hovers in the air, tracing an animal outline above what appears to be a light red smudge. "Both of these are what is known as boat form. The bodies are elongated ovals like a boat or canoe."

A few steps farther, Thomson begins looking for the bear paw. After recently rereading the 1992 report, he realized the paw should be right around here, above a ledge. He turns, tilts his head, and scans the rock walls. And then, there it is: a pad and four claws. "It's so obvious once you see it," Thomson exclaims. Quickly he climbs to the ledge, where he takes photos and studies the art more closely. "I just didn't look up," he mutters to himself as we move on.

Craig and Liz Larcom are freelance writers and photographers in Great Falls.

Next, Thomson takes notes on a group of handprints he has never seen up close before. Like the other pictographs, these appear to be drawn with red ochre, a clay-derived pigment that Thomson says was sacred to the people who came to this site. Because some of the sandstone here is reddish, it can be hard to pick out the pictographs. Thomson points to an elongated pattern of red dots several feet from the hand shapes. "You can see there's a spray pattern in this. They put the ochre in their mouth and blew it onto the rock," says Thomson, making a *Ptooey!* sound for emphasis.

Interpreting the art can be tricky. Thomson and a seasonal park worker found an X-shaped pictograph but couldn't decipher its meaning. One day an American Indian from Texas who studies rock art happened by the park. Thomson showed him a photo of the X and the fellow immediately identified it as a tipi, showing where a little dark spot was the opening.

We later see another tipi, this one a readily identified petroglyph. Thomson says most of the artwork here dates from the late prehistoric period (starting around 900 AD, when Indians had already been using the buffalo jump at Ulm Pishkun for several centuries) to the early 1700s. Also in these cliffs are names, dates, and notes carved by homesteaders.

Some of the petroglyphs are puzzles, like the pairs of distinct, parallel lines that Thomson shows us to the west of where the old Sun River Road once went up the cliffs of Ulm Pishkun. (Pishkun is a Blackfeet Indian word meaning "deep blood kettle," and Ulm is a German name for a nearby town.) Observers speculate that the scarrered lines could represent travois tracks, buffalo tracks, drive lines that bison were stampeded through, or tallies marking the number of kills.

As we head back to his pickup, Thomson tells us he's confident there are many more undiscovered petroglyphs and pictographs at Ulm Pishkun. Recently the state park added a new 418-acre parcel, and Thomson says he can't wait to begin searching for the artistic treasures it may hold.

Visitors may view some of the rock art at Ulm Pishkun, but state park officials caution that pictographs and petroglyphs are extremely fragile and should not be touched, even lightly. For advice on how and where to see the art, ask at the park visitor center. Because rattlesnakes can lurk in the tall grass near the art, make your excursion in the fall, when the reptiles have settled for the winter, or in early spring.

ART GALLERY Thomson stands at the base of the Ulm Pishkun, a mile-long cliff over which American Indians once drove herds of bison. The cliffs contain artwork dating back more than 1,000 years. Clockwise from upper right: the red ochre bear paw; a petroglyph of mysterious dots; a tipi petroglyph that was carved after European settlement of the area; and an X-shaped pictograph some experts believe is a tipi.

Safely down the stream

A BEGINNER'S GUIDE TO ROWING MONTANA'S SCENIC RIVERS

The downstream pull of relentless currents through majestic, ever-changing scenery makes any river journey a moving adventure. Cliffs, meadows, and forests drift by. Clear water pours around boulders and over colored gravel, then ripples past darting trout. As you come around a bend, boulders appear. Mild doses of adrenaline pump into your system as you make quick directional decisions. Steady backrowing causes a quickening of your heart—an engine fueled by a big river breakfast, sweet mountain air, and the desire to see what's around the next bend.

I've spent the last 30-plus years watching riverbanks glide by as the backs of my hands have grown wrinkled on the oars. The combination of great exercise, adventure, and some of Montana's best scenery makes life in the rower's seat a good place to be. Rowers are drawn by the fishing, the excitement of whitewater runs, and the mayflies, swallows, nibbling beavers, grazing deer, and all the other wildlife seen from a boat.

River floaters can be anybody from weekenders soaking up the sun to serious whitewater runners employing highly technical skills. Regardless of where you fall on that spectrum, every rower should know the basic rules and techniques to running a river:

River Safety

Rivers aren't theme park rides. They are dangerous, powerful, and unpredictable, and people drown in them every year. "Many people don't understand that nature can take you quickly," says Bryan Golie, an FWP game warden who often works along the Missouri River between Great Falls and Cascade. Golie notes that any boat on moving water should carry a throw rope and cell phone (in a plastic bag) and that everyone should wear a life jacket (though it's legally required only for those 12 and under). "You need to learn to read water and to respect its deceiving power," he says. (*See box on page 29 for other essential safety gear.*) This is particularly true for complex whitewater, which often occurs in spring when snowmelt creates dangerously cold water and numerous downed trees, called sweepers.

To safely navigate Montana rivers, you need a sturdy craft as well as skills honed by knowledge and experience. Acquiring these skills takes time. Beginning rowers should start on easier stretches of river and work their way up to water of increasing degrees of difficulty. One way to speed up the learning curve is to hire an experienced river guide for a day.

A few other tips: Always remember you need to be constantly making steering adjustments and scanning downstream to spot the best route to take. If you plan to float rivers with braided channels, ask other row-

By Neale Streeks

ers at the boat ramp if they know of channels with new sweepers or other hazards to avoid.

Good behavior

Paying attention to river safety prevents injuries. Paying attention to river ethics and etiquette helps you and other river recreationists have a more enjoyable time on the water. As increasing numbers of anglers, rafters, kayakers, inner-tubers, and others mingle on Montana's rivers and streams, conflicts increase. The basic rules of river etiquette:

- **Use ramps quickly.** Ramps are for loading and unloading boats only. Don't prevent others from using the ramp while you inflate your raft or load or unload your gear from the boat. Take care of that elsewhere and then get the boat and towing vehicle off the ramp quickly.
- **Keep quiet.** Most people float rivers for peace and quiet and to view natural settings.

A Thrill, But a Dangerous One

Though running whitewater is exciting, it's also dangerous: The threat of drowning is always present. High water, logjams, and diversion dams can change a moderate Class 3 river into a treacherous Class 5 cataract. Icy water can make a spill especially dangerous due to the likelihood of gasping from the cold shock when falling in and then breathing in water, causing drowning. Most rivers have a least a few tough spots along the way, and some have impassable falls and gorges you'll need to carry your boat around. Always research a float trip before putting in. Check maps, floater guides, agency websites, and river supply shops for updated river information. Talk to people who have run the river, especially those who've been on it recently.

SAFETY ITEMS TO HAVE ON BOARD

Life jackets	Cell phone*
Throw rope	Raft patch kit
Extra rope	Pump
First-aid kit	Tie-down straps
Extra oar	Extra clothes
Bail bucket	Sunscreen
Waterproof bag	Hats
Rain gear	Shuttle keys

* Remember that in much of Montana, cell phone reception can be unreliable.

Rock "gardens" are often created by landslides.
Big "holes" are formed where water pours over submerged boulders.
Blind corners can block your view of upcoming hazards.
Logjams frequently occur during spring runoff.
Watch out for bridge pilings.
Forests produce logjams and "sweepers" (logs that stick out across the river).
Powerful eddies and whirlpools form where a narrowed channel has room to spread out.
"Standing waves," from a narrowing channel.

ROCKS AHEAD!

Boulders are trouble. A boat that hits one can spin out of control, hang up on top, or get pinned between the rock and current and then swamp—all dangerous situations. A submerged boulder with water pouring over the top creates powerful backflow just downstream of the boulder called a "hole," which can flip a boat in seconds. Rowers often find mild eddies (current swirls) behind exposed boulders where they can rest and get their bearings. The closer the rower is able to pull in behind the boulders, the greater the current break. But rowers should not try to pull in behind submerged boulders, due to the dangerous backflow.

LUKE DURAN/MONTANA OUTDOORS SOURCE: NEALE STREEKS

Loud radios and rowdy behavior at accesses, on the water, and at river camps ruin the river experience for others.

- **Don't trespass.** In Montana, river users may wade in the water anywhere, but on land they may set foot only on public property, on riverbanks below the ordinary high-water mark, or on private land with landowner permission.
- **Don't litter:** Bring a bag for your own trash (and human waste), and consider picking up litter you see during your trip.

One of the biggest challenges facing river users is the growing conflict between waders and rowers. Wading anglers complain that boats scare the fish they are casting to. Rowers point out that it can be difficult to safely navigate around waders, especially on smaller rivers, and that often they can't avoid spooking fish. "As rivers see more use, it's likely that conflicts will become more common," says Charlie Sperry, FWP's river recreation coordinator. "But conflicts are not only caused by overcrowding; sometimes it's simply the attitude and practices of people on the rivers." Sperry says all river users need to communicate with each other to reduce conflicts.

If you see anglers in the river ahead of you, pay special attention to where they are casting so you don't ruin their fishing. If the river or channel is so small that you have to float near anglers, ask which way you should go to least affect their fishing.

Further challenges

As if rowers didn't have enough to worry about with rock gardens and wading anglers, they have to contend with Montana's strong winds. Cross winds blow boats to the lee side of the river (and woe to the angler who wades the lee shoreline on a windy weekend day). Tail winds can blow a boat downstream into obstructions. Head winds can significantly slow your progress, delaying your arrival to the takeout into the night. Only skilled, powerful rowers can keep a boat on course in steady 30-plus mph winds on rivers like the Yellowstone and Missouri. On these big waters, casual floaters may want to reschedule their outing if the forecast calls for high winds.

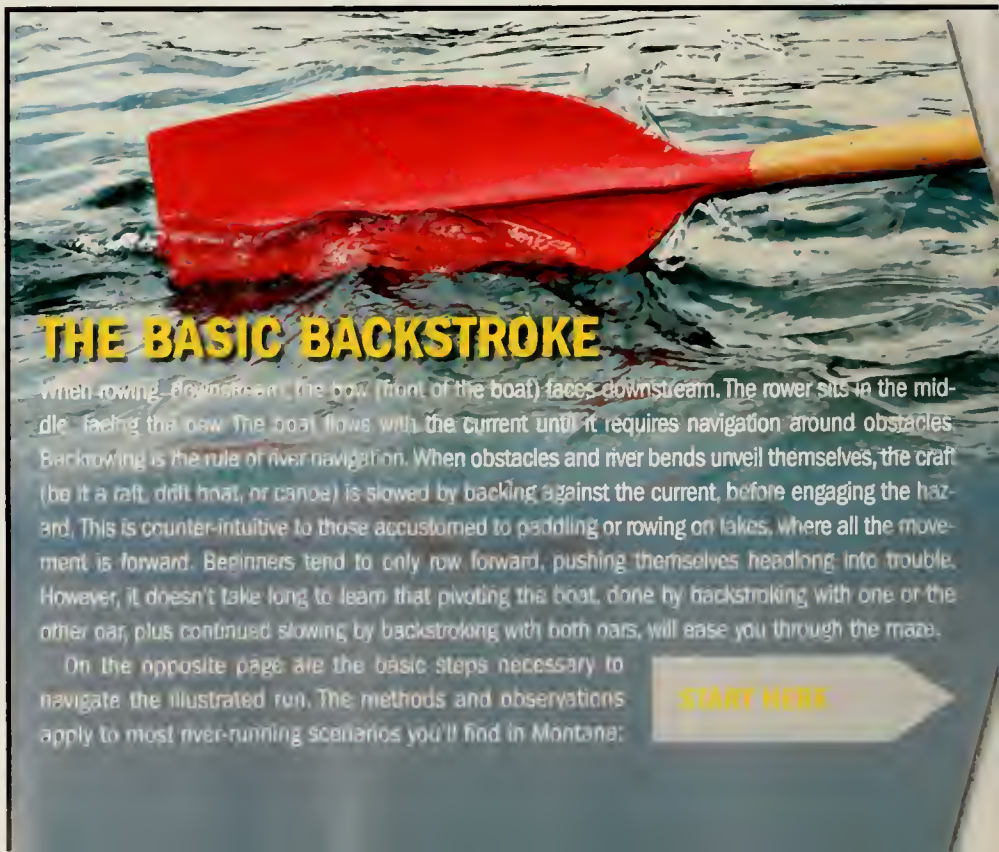
> "Many people don't understand that nature can take you quickly. You need to learn to read water and to respect its deceiving power."

Another rowing headache is very shallow water, something common on smaller Montana rivers once water levels drop in early summer. The boat ends up stuck on gravel bars, requiring the occupants to get out and either walk alongside the craft or drag it until the channel deepens.

Yet another hazard, one beginners rarely consider, is a rising or setting sun. The Blackfoot River, for instance, flows directly west, and at sunset the reflections are so bright on the broken water that it's nearly impossible to see where you're going.

All this talk of challenges, safety, and ethics is important, but don't let it dissuade you from grabbing a pair of oars and learning how to row. Rowing Montana's rivers can be one of summer's greatest pleasures. A boat not only allows you to reach great fishing water that you often can't access by wading, but it also takes you through some of the most scenic valleys in the United States. By being properly equipped and prepared, and learning how to control the boat in all situations, you'll be able to fully enjoy your Montana river experience this summer and for years to come.

Rivers are rated by an international 1 to 6 system, with 1 being easiest and 6 unrunnable. Class 4 or 5 rivers or rapids are for experts only. For ratings of Montana rivers, information on river rescue, and more, visit the American Whitewater Association website at www.awa.org. For additional information on river ethics and etiquette, visit the FWP website at fwp.mt.gov and search for "etiquette."


THE BASIC BACKSTROKE
When rowing downstream, the bow (front of the boat) faces downstream. The rower sits in the middle facing the bow. The boat flows with the current until it requires navigation around obstacles. Backrowing is the rule of river navigation. When obstacles and river bends unveil themselves, the craft (be it a raft, drift boat, or canoe) is slowed by backing against the current, before engaging the hazard. This is counter-intuitive to those accustomed to paddling or rowing on lakes, where all the movement is forward. Beginners tend to only row forward, pushing themselves headlong into trouble. However, it doesn't take long to learn that pivoting the boat, done by backstroking with one or the other oar, plus continued slowing by backstroking with both oars, will ease you through the maze.
On the opposite page are the basic steps necessary to navigate the illustrated run. The methods and observations apply to most river-running scenarios you'll find in Montana.
START HERE

Neale Streeks is a writer and river guide in Great Falls.

9 Just before getting centered in the chute, the rower makes a few hard pulls on the right oar to straighten the raft in the current. It's important to not overrow, because momentum built up during the cross-river ferry can continue to take the boat to the right, even after the rower stops rowing. As the boat drops over the ledge, the rower keeps the bow pointed into the biggest standing waves. Wave troughs, turbulence, and foam can make some oar strokes ineffective. Quick additional oar strokes and maneuvering may be needed. While enjoying the ride, the rower looks for boulders and "holes" (powerful backflows) hidden in the waves. Upon leaving this run, the rower continues to look ahead, searching for new dangers and plotting out the best routes. In the quieter stretches, the rower can relax and enjoy the panoramas that surround Montana river runs.

8 While maintaining a 45-degree backrowing ferry, the rower looks ahead for the best entry through the upcoming ledge drop. Right of center is an inverted V, framed by waves, indicating a channel. Threatening holes lie to each side of the V, so the rower must get the correct "setup" (boat positioning) before entering the slot. To get the right setup, sometimes it's helpful to stand up in the raft for a second or two to better see what lies ahead. Do this only in places where the water is calm, and keep a firm grip on both oars.

7 Noticing that downstream are big "ledge holes" that could flip the boat, the rower decides to get over to the right channel and pulls hard on the left oar only, but just a few times. (Pulling too many times on that oar would put the raft sideways in the current, making it more likely to slam into boulders and flip.) Next the rower pulls hard on both oars to ferry to the right.

6 Approaching the left channel, the rower takes slower backstrokes, allowing the momentum from the previous backstroking to carry the craft along. Upon entering the channel, the rower straightens the boat by pulling back hard a few times on the left oar only. The rower scans the upcoming run and plots a course. At this point, the rower could pull in behind Boulder B and rest in the slow eddy water while checking the situation downstream.

5 Continuing to backstroke with both oars, the rower maintains the 45-degree ferry (which occasionally the current will try to push you out of).

4 A more experienced rower could squeak through the narrow chute on the right up ahead, but this rower plays it safe and decides on the more forgiving left channel. To get there, the rower pulls back hard on the right oar a few times, pointing the stern 45 degrees left. By pulling back hard and continuously on both oars, the rower maintains the 45-degree ferry to the left, avoiding the rocks directly downstream.

3 Once in the right-hand channel, the rower straightens the raft by pulling back on the right oar a few times. More rapid pivoting can be achieved by dragging or pushing forward on the left oar, while pulling back hard on the right.

2 Having chosen the channel on "river right" (the right bank when facing downstream; "river left" is the left bank), the rower pulls back a few times on the left oar only, until the stern (back of boat) is pointed 45 degrees toward the right shore (and away from Boulder A). Next the rower pulls back hard with both oars, continuing the 45-degree crossing angle, with enough strokes to miss the boulder. The combined forces of the backstroking with the downstream current slides the boat sideways across the river. Known as "ferrying," this technique allows you to slow down your boat and move left or right across the current at the same time. The key to ferrying is to aim the stern away from obstructions and toward the way you want to go.

1 The rower sees the upcoming rock "garden" (a run filled with boulders) and backstrokes with both oars to slow the boat and look over the situation before getting into it. If there's a logjam ahead, or the rapids look dangerous, the rower will pull ashore, beach the boat, and walk downstream to check out a safe route. "If in doubt, scout," is the basic guideline. If it looks impassable, the rower will tie a rope to the stern and "line" the boat through a tough spot while walking on shore.

ROW, ROW, ROW

It takes practice to know how many oar strokes are needed to cross a width of moving water. Too many strokes can take you too far. Not enough and you end up careening off boulders, bouncing people out of boats, and spinning out of control. Water speed, wave height, turbulence, wind, oar length, and rower strength all factor into how many oar strokes are needed to accomplish each maneuver.

LUKE DUBAY/MONTANA OUTDOORS. SOURCE: NEALE STREENS

YELLOWSTONE CUTTHROAT TROUT, YELLOWSTONE RIVER BY PAT CLAYTON/FISHEYEGUYPHOTOGRAPHY.COM

Ye gods! This is restoring trout habitat

Spawning tributary improvements in the Paradise Valley are helping conserve Rudyard Kipling's "small tigers."

By Glenn Phillips

In July 1890, four years before publishing his famous *The Jungle Books* collections of stories, British author and poet Rudyard Kipling traveled to Yellowstone National Park by train from Livingston up the Paradise Valley.

An avid angler, Kipling departed the train near Yankee Jim Canyon and spent the day fishing the big river's pools and rapids before heading into the park the next morning. Later recalling his day on the Yellowstone, Kipling wrote: "...the fish bit the brown hook as though never a fat trout-fly had fallen on the water....At the fortieth trout I gave up counting, and I had reached the fortieth in less than two hours....They fought like small tigers, and I lost three flies before I could understand their method of escape. Ye gods! That was fishing...."

The object of Kipling's angling excitement was the Yellowstone cutthroat trout, a close relative of Montana's other cutthroat, the westslope. Also known as the black-spotted trout, the Yellowstone cutthroat has large dark spots concentrated toward the tail and a bright orange or red "cutthroat" slash under each side of the lower jaw.

Kipling wasn't the only early angler who marveled at Yellowstone cutthroats. Walter Trumbell, an angler and member of the famous Washburn Party that explored the Yellowstone Plateau in 1870, wrote: "...and such trout!...Few of them weighed less than two pounds, and many were over three... when their attention was respectfully solicited to a transfixed grasshopper, they seldom failed to respond."

Kipling and Trumbell would see a different cutthroat trout fishery if they were to make the same trip these days. Yellowstone cutthroats were once abundant, and the native fish was the only trout species in the Paradise Valley. Today, numbers of the native trout there and elsewhere in its historic range (*see map on opposite page*) are much reduced. The decline is due to habitat degradation caused by irrigation, grazing, road building, and various other human activities. The native trout have also been displaced, out-competed, or hybridized by non-native brown, rainbow, and brook trout.

RUDYARD KIPLING/CORBIS IMAGES

Fortunately, there is some good news to report. Over the past few years, many of the degraded spawning tributaries in the Paradise Valley have been restored. And work is now under way on several other streams to improve spawning habitat and maintain adequate water flows. These projects are the result of a unique combination of public funding, public interest, and legislative support. Most important to the restorations has been the cooperation of farmers and ranchers, who are often leery of state-sponsored conservation initiatives that can affect their operations.

FIXING THE PROBLEM

Montana Fish, Wildlife & Parks and federal biologists working in the Paradise Valley have known for years that the Yellowstone River's cutthroat rely heavily on tributaries for spawning and rearing. They've also known that tributary degradation—dewatering for irrigation, diversion dams that block trout from spawning habitat, and channel alterations and land management practices that damage and diminish habitats—have contributed to the Yellowstone cutthroat decline. But not until recently has FWP had the money and staff to do much about those problems.

In 2002, using funding from a new U.S. Fish and Wildlife Service program, FWP hired fisheries biologist and 14-year department veteran Pat Byorth to work on Yellowstone cutthroat trout restoration. During his four-year tenure in the Livingston area, Byorth and other state and federal biologists identified most of the streams where healthy populations of pure-strain Yellowstone cutthroats remain. They next delineated specific projects to solve problems thwarting cutthroat survival and spawning success.

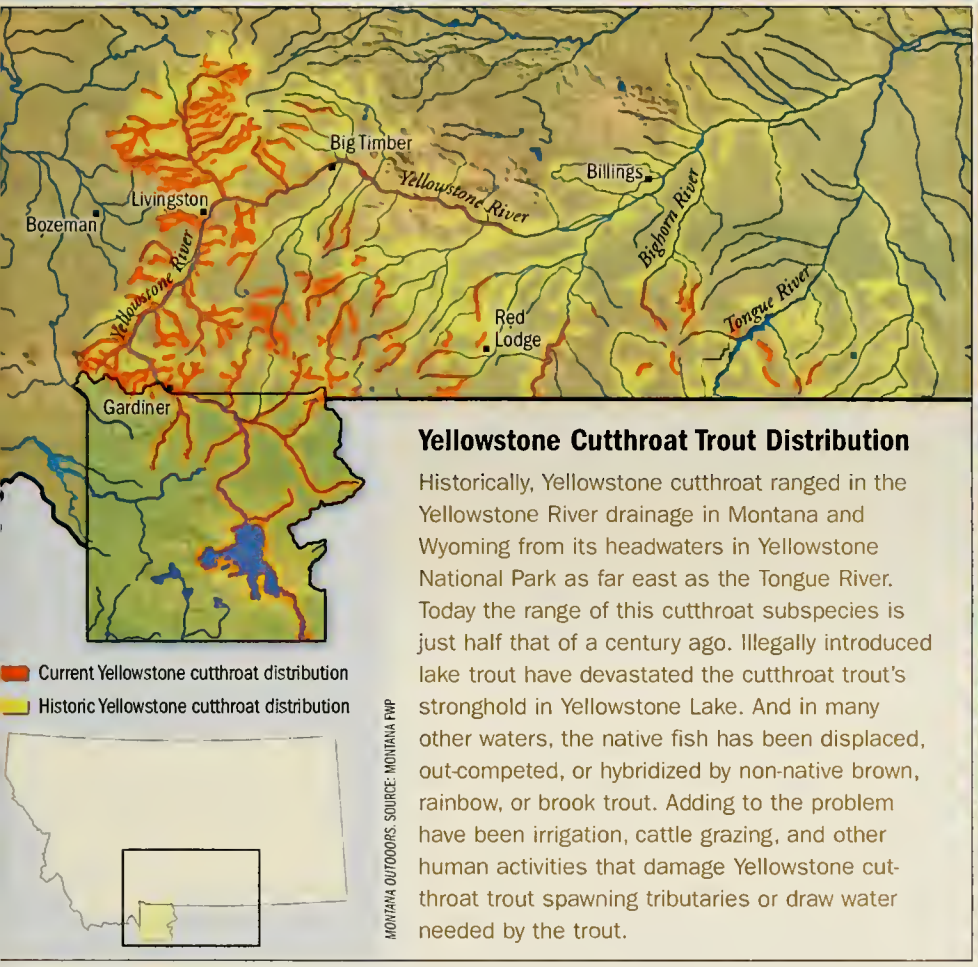
To make these projects happen, landowner cooperation was essential. "Many were willing to work with us once they understood the department wasn't trying to regulate their activities," says Byorth, who has since gone on to law school. "And many were genuinely concerned about the status of the fish, fearing that if the cutthroat is listed under the Endangered Species Act, they'll face difficult federal restrictions. They saw cooperating with us on projects that require little of their own money and resources as an attractive option."

NO MORE STUCK CALVES

Before it reaches the Yellowstone River, Emigrant Spring Creek flows its entire length, about half a mile, through Richard and Druska Kinkie's Emigrant Peak Ranch. To free land for growing hay, previous owners had straightened the stream, reducing stream bends that create vital trout habitat. Some stretches had also become too shallow for trout survival due to cattle trampling the banks. Byorth worked with the Kinkies to restore the stream by re-establishing the natural stream bends and narrowing and deepening the channel to speed the current and wash away sediment that was covering spawning gravel. The stream was fenced, and off-stream cattle watering troughs fed by new wells were installed.

After the project was completed in 2004, the number of Yellowstone cutthroat trout

Glenn Phillips is chief of the FWP Fisheries Habitat Protection Bureau in Helena.



MONTANA OUTDOORS. SOURCE: MONTANA FWP

Yellowstone Cutthroat Trout Distribution

Historically, Yellowstone cutthroat ranged in the Yellowstone River drainage in Montana and Wyoming from its headwaters in Yellowstone National Park as far east as the Tongue River. Today the range of this cutthroat subspecies is just half that of a century ago. Illegally introduced lake trout have devastated the cutthroat trout's stronghold in Yellowstone Lake. And in many other waters, the native fish has been displaced, out-competed, or hybridized by non-native brown, rainbow, or brook trout. Adding to the problem have been irrigation, cattle grazing, and other human activities that damage Yellowstone cutthroat trout spawning tributaries or draw water needed by the trout.

STREAM STEWARD Tiny North Fork Fridley Creek was an important spawning tributary to the Yellowstone River until an irrigation canal cut it off in the 1930s. In 2002, rancher Sean Murphy (below) and wife, Maggie, worked with FWP and Trout Unlimited to build a culvert under the canal and reconnect the stream to the Yellowstone. Elsewhere in the Paradise Valley, landowners are opening their gates to trout conservationists working to restore cutthroat spawning tributaries and forestall federal listing under the Endangered Species Act.

LAURA KIEMER/TROUT UNLIMITED

using spawning sites, called redds, doubled. "And we expect the number will increase in the future," Byorth says. Druska Kinkie adds that fencing the spring creek has helped the family's cattle operation. "We no longer have to worry about pulling calves out of the mud," she says. "We also enjoy the greater variety of wildlife attracted to the area and, of course, we want to see the fish do well."

Big Creek, another tributary to the upper Yellowstone River near Emigrant, supports a healthy resident Yellowstone cutthroat population. But for decades irrigation withdrawals dried up the last mile of stream, preventing trout in the Yellowstone River from using it for spawning. In 1998 local irrigator and state legislator Bruce Malcolm and his neighbor Dick Kendall decided they could help cutthroats by installing a new irrigation system that would leave more water in Big Creek. What was once a dry stream bed now flows year-round, and Yellowstone River cutthroats are again migrating upstream to their historic spawning grounds. "It's a win-win situation," says Malcolm. "The trout have their water, and we can continue to irrigate."

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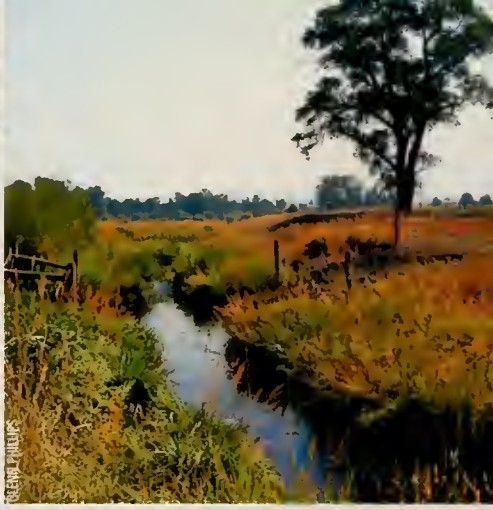
North Fork Fridley Creek, which flows through Sean and Maggie Murphy's Ox Yoke Ranch south of Livingston, is another success story. Historically, the creek flowed unimpeded to the Yellowstone, but Park Branch Canal, built in the 1930s, intercepted the creek and cut off its connection to the big river. Though Yellowstone cutthroats remained in upper reaches of North Fork Fridley Creek, the cutthroats in the Yellowstone River could no longer ascend the tributary for spawning.

In 2004, the Murphys teamed with Trout Unlimited and FWP to construct a 105-foot culvert underneath the canal that reconnected the North Fork Fridley to the Yellowstone. The Murphys also modified their irrigation practices, donating the water they conserved back to the stream, and installed streamside fencing to keep cattle out. A series of underwater steps installed in a steep portion of the stream above the culvert also helps trout from the Yellowstone reach historic spawning grounds. Biologists predict that it won't be long before cutthroats from the Yellowstone resume their spawning runs up the tributary.

JEFF FOLGERT



GREG PHILLIPS

NO-COW AREA Another threat to Yellowstone cutthroats (left) are livestock trampling the banks of spawning tributaries. After Emigrant Spring Creek (above) was fenced off, trout spawning sites doubled, and rancher Druska Kinkle says she and her husband no longer have to pull calves out from the mud.

On other tributaries in the upper Yellowstone drainage, property owners have volunteered to sell water leases to FWP, thus keeping more water in the streams. And trout conservationists have worked with landowners to install screens over the entrances to irrigation diversions to prevent cutthroats from being drawn into the ditches. In recent years, FWP has secured state and federal funding to screen irrigation diversions on Mol Heron Creek and Big Creek and install a fish ladder around an irrigation diversion on South Fork Fridley Creek. Elsewhere in the drainage, trout managers have removed brook trout, which out-compete cutthroats for food and hiding areas.

Amy Miller, former coordinator for two watershed groups working to improve the Shields River drainage, believes much of this success can be attributed to agencies and organizations taking the time to develop trusting relationships with landowners. "You need to spend time letting landowners know who you are, what you are trying to accomplish, and, most important, what it means to them," says Miller. "These folks are neighborly and will treat you like a neighbor if you gain their trust."

FUTURE FISHERIES

Stream restoration in Montana got a huge financial boost in 1989 when the state legislature established the River Restoration Program, the first of its kind in the nation. Then-legislator Hal Harper, now Governor Brian Schweitzer's chief policy adviser, led the charge to invest fishing license dollars into habitat protection and restoration. "We felt that angling pressure was increasing and that we needed to create more fishable miles of stream," he says. "The state was spending millions of dollars each year on hatchery operations, and we reasoned that it made sense to also use fishing license money to improve trout spawning areas located in tributaries."

The state River Restoration Program and its updated versions, the Future Fisheries Improvement Program (established in 1995) and the Bull Trout and Cutthroat Trout Enhancement Program (1999), have funneled over $8 million in state dollars and $17 million in matching contributions into more than 400 projects statewide, improving critical fish habitat in hundreds of miles of streams.

Increasingly, many of those habitat improvements are helping native species populations such as those of Yellowstone cutthroat trout. "People are beginning to recognize and appreciate that native fishes are an important part of Montana's heritage," says Byorth. "And not only that, they can be fun to catch." Rudyard Kipling certainly thought so. When he fished the Yellowstone River that July evening in 1890, he wrote of the trout: "They breasted the boiling river for my fly and they got it."

"You need to spend time letting landowners know what this means to them. These folks are neighborly and will treat you like a neighbor if you gain their trust."

Yellowstone cutthroat trout have been thrilling and inspiring Montana anglers and visitors to the state for more than a century. Habitat improvement projects in the Paradise Valley and other segments of the species' native range will help ensure that Kipling's experiences will be enjoyed by others for years to come.

Mountain Whitefish

Prosopium williamsoni

By John Fraley

When my family and I fish the South Fork of the Flathead River each year, we always enjoy catching and eating mountain whitefish. The fillets taste great broiled or fried, but most anglers would never consider eating a whitefish, which they consider a "trash fish," or a nuisance that competes with more desirable trout. Due to such widespread prejudice, this scrappy, abundant member of the trout family is Montana's most underutilized fish.

APPEARANCE

Like its trout and salmon cousins, the mountain whitefish has a cylindrical body. It has a gray-bronze back fading to silvery sides, larger scales than those of trout, and a small mouth overhung by the upper jaw, giving it a suckerlike appearance. It can easily be distinguished from suckers and pikeminnows, however, by the presence of an adipose fin on its back just forward of the tail fin. Meriwether Lewis described the mountain whitefish as a "bottle-nosed fish" when he saw it in the upper Missouri drainage in 1805. Mountain whitefish average about 12 inches in Montana, but anglers regularly catch larger specimens. The state record mountain whitefish, just over 5 pounds, was caught in the Kootenai River. Similar species in Montana include pygmy whitefish (a native species) and lake whitefish (a non-native).

DISTRIBUTION

You'll usually find mountain whitefish in larger streams and rivers where you find trout. The species is common in large coldwater rivers and major tributaries on both sides of the Continental Divide in all three major drainages: the Columbia, Missouri, and Saskatchewan (St. Mary). In North America, the species is found from Alaska south to the headwaters of the Colorado River.

John Fraley manages the FWP regional Information and Education Program in Kalispell.

CHUCK & GALE ROBBINS

Whitefish usually reproduce at three years old, spawning at night in the fall. They do not build nests. The female broadcasts her eggs over gravel while the male fertilizes them. A mature female contains about 4,000 eggs. Eggs develop over winter and then hatch in March.

MANAGEMENT

Mountain whitefish outnumber trout ten to one in rivers such as the Kootenai, Yellowstone, and Flathead. In the Madison River, mountain whitefish densities reach an incredible 15,000 fish per mile. While conducting underwater fish surveys in the South and Middle forks of the Flathead, I've seen portions of the stream bottom completely covered with mountain whitefish. Despite their abundance, whitefish don't directly compete with trout because they use different habitats within a stream. Whitefish feed on aquatic insects on the stream bottom and usually occupy the lower stretches of a pool. Trout usually feed higher in the water column of a river and generally occupy the upper ends of pools. Due to the abundance of mountain whitefish, FWP allows a harvest limit of 100 fish in the western and central fishing districts. Few anglers take advantage of the opportunity.

SPORTING AND EATING QUALITY

Many a trout angler has sighed in disappointment when what seems to be a big brown or rainbow turns out to be "just" a mountain whitefish. Yet a whitefish puts up an admirable fight (which is why so many anglers think it's a trout until they actually see the fish). Mountain whitefish are also excellent table fare when cooked, smoked, or pickled. Participants in a Montana State University study agreed: Whitefish and trout taken from the Madison River, when cooked, were equal in texture, aroma, tenderness, and juiciness. For best results, fillet the whitefish, remove any brown fat and skin, coat with your favorite breading, and fry in light oil. Or season the boned and skinned fillets and microwave them for roughly three minutes per side. All in all, the mountain whitefish is a hard-fighting, delectable member of the trout family, worthy of much higher consideration than it currently receives.

PARTING SHOT

MONTANA SHARK

Its red adipose fin gives away a brown trout resting just beneath the surface of a southwestern Montana spring creek. Scars indicate that the fish has escaped a predator or two during its lifetime. Photo by Dušan Smetana.

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